

MONTHLY WEATHER REVIEW.

VOL. XX.

WASHINGTON, D. C., MAY, 1892.

No. 5.

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INTRODUCTION.

This REVIEW is based on reports for May, 1892, from 2,891 regular and voluntary observers. These reports are classified as follows: 160 reports from Weather Bureau stations; 47 reports from United States Army post surgeons; 1,946 monthly reports from state weather service and voluntary observers; 229 reports through the Central Pacific Railway Company;

477 marine reports through the co-operation of the Hydrographic Office, Navy Department; 32 reports from Canadian stations; marine reports through the "New York Herald Weather Service;" monthly reports from local weather services established in all states and territories, except Idaho; and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used.

CHARACTERISTICS OF THE WEATHER FOR MAY, 1892.

From the Mississippi River to the Rocky Mountains cold and wet weather interfered with farming operations. Immense damage to property was caused by floods in the Mississippi River and tributaries.

TEMPERATURE.

Unusually cool weather prevailed over the interior of the country, and in the Missouri and Red River of the North Valleys, on the middle-eastern slope of the Rocky Mountains, and over the middle and northern plateau regions the month was the coolest May on record. The principal cool wave of the month swept over the Southern States from the 22d to 24th, causing slight damage to vegetation by frost in northern parts of the Gulf States.

PRECIPITATION.

In interior districts the monthly precipitation was generally in excess. The most marked deficiency was shown over the Gulf and south Atlantic states. In eastern New York, the lower lake region, at points in the Ohio, middle and upper Mississippi valleys, and at Spokane, Wash., Red Bluff and Los Angeles, Cal., the precipitation was the greatest ever recorded for May. At Pensacola, Fla., the precipitation was the least ever noted for May. From the 2d to the 4th a heavy snowstorm prevailed over eastern Wyoming and western Nebraska, causing considerable loss of stock on the ranges. On the 19th a severe snowstorm occurred in southern, central, and northwestern Wisconsin. On the 20th and 21st a snowstorm, with high wind, visited western and northern New England.

LOCAL STORMS.

In the central valleys the month was marked by numerous severe local storms. The tornadoes in south-central Kansas on the 27th were notably destructive to life and property. At Wellington, Kans., twelve persons were reported killed, and three lives were lost near Harper, Kans. On the 31st six persons were reported killed by tornadoes in central Texas. Tor-

nadoes were reported in Oklahoma Territory on the 2d and 12th, at Eureka, Kans., on the 13th, near Allison, Kans., and Mangum, Okla., on the 16th, near Olney, Ill., on the 28th, and at Independence, Kans., on the 30th.

FLOODS.

Destructive floods occurred along the middle and lower Mississippi River and tributaries throughout the greater part of the month. The more important Mississippi levees held firm. About 60,000 acres of cultivated land in the American Bottom, opposite Saint Louis, Mo., were submerged. Water from crevasses inundated plantations in various parts of Louisiana. The Mississippi River reached high-water mark at New Orleans, La. The Missouri River flooded low-lying parts of Kansas City, Mo., and suburbs. Great devastation by flood was reported along the Illinois River. On the 18th a flood in the Floyd Valley, Iowa, resulted in the loss of about twenty lives, and destruction of property to the estimated value of \$1,000,000. The Arkansas River reached the highest stage ever known at Fort Smith, Ark., and overflowed about 10,000 acres of cultivated land in that section. At Little Rock, Ark., the stage of water was the highest reached since 1844, and plantations above and below that place were reported under water. Destructive floods occurred along the Red River, in Texas and Louisiana. At Shreveport, La., the river reached the highest stage ever noted at that port, and large areas in Bossier parish were submerged. At the close of the month the Willamette River was over the lower docks at Portland, Oregon.

AURORAS.

The principal auroral display of the month was observed from New England to Montana and southward to Missouri and Oklahoma Territory the night of the 18-19th. In New England the display was very brilliant, and, at its height, covered nearly the entire sky, with a well-defined corona near the zenith.

ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean atmospheric pressure for May, 1892, as determined from observations taken daily at 8 a. m. and 8 p. m. (75th meridian time), is shown on Chart II by isobars.

In May the mean pressure is usually highest on the Oregon coast, where it is 30.05, and it is 30.00 and above in districts south of the Ohio and east of the Mississippi rivers. The normal pressure for May is lowest over the west part of the

southern plateau region and in the upper Missouri Valley, where it is below 29.90. In May there is usually a decrease of pressure, except on the north Pacific coast, and from the Ohio Valley over the middle Atlantic and New England states. The most marked decrease occurs from the lower Colorado valley over southern California and the San Joaquin and Sacramento valleys, and in the upper Missouri and Red River of the North valleys, where it is more than .05, and the greatest increase is shown over eastern New England, where it exceeds .05.

In May, 1892, the mean pressure was highest along the south Atlantic and east Gulf coasts and over the Florida Peninsula, where it was above 30.05, and the mean readings were above 30.00 in districts east of the Mississippi River and south of the 40th parallel, in an area extending from the middle Saskatchewan valley to Nebraska, and along the Pacific coast north of the 40th parallel. The mean pressure was lowest over the southern plateau region and on the southeast slope of the Rocky Mountains and thence to the upper Mississippi valley, where it was below 29.90.

A comparison of the pressure chart for May, 1892, with that of the preceding month shows a decrease of pressure, save over eastern New England and the Canadian Maritime Provinces, and in an area extending from the upper Saskatchewan valley to Nebraska and the extreme north Pacific coast, where the pressure was higher than for the preceding month. The most marked decrease of pressure occurred over Lower Michigan, where it was .15, and the decrease was more than .10 from eastern Manitoba to the middle Atlantic coast and on the middle and south Pacific coasts. The greatest increase of pressure was noted over the Canadian Maritime Provinces, where it was .05 to .10.

The mean pressure was above the normal in the middle and northern Rocky Mountain and plateau regions, in the middle and upper Missouri and Red River of the North valleys, over the south Atlantic and east Gulf states and Tennessee, and on the southeast New England coast, the greatest departure being noted from North Dakota over the Saskatchewan Valley, where it was more than .10. From the Saint Lawrence Valley and the Lake region southwestward to the Rio Grande Valley, and along the Pacific coast north of the 35th parallel the mean pressure was below the normal, the most marked departure being shown in western Oregon, where it was .05.

HIGH AND LOW AREAS.

The paths of areas of high and low pressure over the United States and Canada during May, 1892, are shown on Charts IV and I, respectively, and some of the prominent characteristics of the areas are given in the table at the end of this chapter.

HIGH AREAS.

Eight high areas appeared, the average number traced for May during the last 18 years being 6.6. Of the high areas traced for the current month 2 advanced from the north Pacific coast, 3 appeared over the British Northwest Territory, and 3 were first located in the upper Missouri valley. The Pacific coast areas moved to the Gulf of Mexico, and one, number VI, is traced thence off the south Atlantic coast. Of the British America high areas, one advanced to the Canadian Maritime Provinces, one disappeared off the North Carolina coast, and one occupied the Red River of the North Valley at the close of the month. The high areas from the upper Missouri valley passed southeastward and disappeared off the south Atlantic coast. The following is a description of the high areas traced:

I.—The month opened with high pressure over the Saskatchewan Valley, and freezing weather in the Dakotas and Montana. Settling southward this high area occupied eastern Montana and eastern Wyoming on the 3d. By the morning of the 4th it had passed to Iowa, with pressure above 30.20. At this report a ridge of high pressure extended from the Saskatchewan Valley to the east Gulf and south Atlantic coasts.

By the evening report of the 4th the pressure was high from the Lake region to the southeastern coasts, with three centers of higher pressure showing readings above 30.20, one over Lake Huron, one over southeastern Tennessee, and one off the Georgia and north Florida coasts. On this date the temperature fell decidedly from eastern Tennessee to the lower lakes, with rain over the greater part of that region. By the morning of the 5th the pressure had decreased rapidly in the middle and lower Ohio valleys and the southwestern Lake region, and the ridge of high pressure extended from eastern Ontario to the south Atlantic coast, with highest pressure northeast of Lake Superior, where it was 30.40. During the 5th this ridge of high was divided by an area of low pressure which advanced over the upper Mississippi valley. By the morning of the 6th the high pressure area had disappeared, and the area of low pressure referred to occupied the Lake region.

II.—Advanced from the British Northwest Territory and occupied the Saskatchewan Valley on the 6th, with pressure above 30.40. During the 7th this high area advanced to the region north of Lake Superior with pressure above 30.50, and freezing weather was reported in Upper Michigan. From the 7th to the 9th the area remained north of Lake Superior, with pressure rising above 30.60. On the 8th the lowest temperature of the month was noted from the eastern Lake region and the upper Ohio valley to the New Jersey coast, and on the 9th the lowest temperature of the month occurred in the District of Columbia, Virginia, and the interior of North Carolina. During the 10th the center passed southeastward over the Canadian Maritime Provinces, and the morning of the 11th occupied the ocean off Nova Scotia.

III.—Appeared over the Saskatchewan Valley on the 10th, with pressure above 30.40. On this date the lowest temperature of the month was noted at stations on the middle and southeast slopes of the Rocky Mountains, and light frost was reported at Dodge City, Kans. During the 11th the high area passed to Manitoba, with a marked decrease of pressure, and during the 12th moved southeastward over the Lake region to the upper Ohio valley, with pressure above 30.20. On the 13th the center passed eastward off the middle Atlantic coast, with pressure above 30.30.

IV.—Appeared central over western Nebraska the evening of the 14th, with pressure above 30.10, passed to Arkansas during the 15th, and disappeared off the south Atlantic coast during the 16th, with highest pressure, 30.32, at Atlanta, Ga., at the morning report of the 15th.

V and VI.—Appeared off the middle Pacific coast on the 16th, and the morning of the 17th was central on the north Pacific coast, with pressure above 30.40. Extending rapidly southeastward a branch of this high area reached Texas by the evening of the 18th, when a ridge of high pressure occupied districts lying between the west Gulf and north Pacific coasts. During the 19th this ridge of high pressure was divided by a low pressure area which had advanced from the southern plateau region, one part of the high area, number V, passing over the Gulf of Mexico, and the other, high area VI, advancing from the north Pacific coast to the northeast slope of the Rocky Mountains. On the 20th number VI remained nearly stationary over northeastern Montana, with pressure 30.60, the temperature was below freezing in Minnesota, and the lowest temperature of the month was reported in the extreme upper Mississippi and Red River of the North valleys. During the 21st the high area settled southward over the Dakotas with a marked decrease of pressure, and the lowest temperature of the month was noted in the lower Missouri, middle Mississippi, and middle and lower Ohio valleys. During the 22d the center moved southward to Oklahoma Territory, and the lowest temperature of the month occurred in the middle and west Gulf states. On the 23d the high area reached the Gulf of Mexico, and during the 24th disappeared off the south Atlantic coast, attended by the lowest temperature of the month in the east Gulf and south Atlantic states. The low temperature of the 22d to 24th caused slight

damage to tender vegetation at points from North Carolina to Texas.

VII.—Appeared over the Dakotas and Nebraska the morning of the 26th, and by the evening of the 27th had advanced to Indiana, from which region it passed southeastward and disappeared off the North Carolina coast during the morning of the 28th. This high area was unattended by noteworthy features, the highest pressure, 30.10, being noted on the North Carolina coast on the 28th.

VIII.—Moved slowly eastward over and north of Montana and North Dakota during the last two days of the month, with highest pressure, 30.20, in the Red River of the North Valley on the 31st.

LOW AREAS.

The low areas of May advance eastward over the United States at an average velocity of 25 statute miles per hour, the average velocity for May, June, and July being the lowest of the year. A large proportion of the storms of May move from the middle and northeast slopes of the Rocky Mountains to eastern Ontario, from which region they advance to Newfoundland. An average of less than one storm per month advances from the north Pacific coast and traverses the continent.

The tracks of 11 low areas are plotted on Chart I for May, 1892, the average number traced for May during the last 18 years being 6.6. Three of the low areas advanced from the Pacific coast, 3 advanced from the Saskatchewan Valley, and 5 advanced from the southeast slope of the Rocky Mountains. Two of the Pacific coast low areas reached the Atlantic coast. The low areas of the first and second decades of the month followed a course from Oklahoma Territory and Kansas to the Lake region, and those traced for the last 11 days of May were confined principally to British America and the Atlantic coast. The average velocity of the low areas, 28 miles per hour, was 4 miles per hour greater than the average rate of advance of low areas for May. A description of the more important storms that attended the low areas is given under "Local storms." The following is a description of the low areas of the month:

I.—Was a continuation of low area VIII for April, 1892, and at the opening of the month was central over Kansas, with pressure below 29.70. On the 1st a trough of low pressure extended from the western Lake region to New Mexico, and the pressure was high in the Saskatchewan Valley and along the Atlantic coast, rain fell from the Missouri Valley to New England, heavy thunder, rain, and hail storms occurred in Missouri, Iowa, eastern South Dakota, Illinois, Indiana, and northern Ohio, and high winds were reported in southern and central Kansas. By the morning of the 2d an offshoot from this low area had reached Lower Michigan, and a new development, low area II, appeared central over extreme northwestern Texas. The evening report of the 2d indicated that the Michigan low area had dissipated over the lower lakes or Pennsylvania, with heavy thunder, rain, and wind storms in the Ohio Valley.

II.—Was central near the Panhandle of Texas the morning of the 2d with pressure 29.70, and moved to eastern Kansas by the evening report of that date, with an apparent increase of energy. On this date rain fell northeast of the center, tornadoes were reported in Oklahoma Territory and southeast Kansas, and heavy thunder and hail storms occurred in eastern Kansas and western Missouri. During the 3d the center moved northeastward to the Lake Huron region, with pressure below 29.60, the rain area extended from the lower Missouri valley to New England and New Jersey, the wind reached a velocity of 60 miles per hour from the southwest at Chicago, Ill., and severe local storms occurred in the middle Mississippi and Ohio valleys, the lower lake region, and western New York. By the evening of the 4th the center reached the lower Saint Lawrence river, with a slight increase of central pressure, and rain was followed by clearing weather in the Lake region.

III.—During the 3d the pressure was low over the central valleys of California, and the evening report showed this low area central over northern California, with pressure below 29.70. The morning of the 4th a trough of low pressure extended from the north Pacific coast to New Mexico, with lowest pressure, 29.54, at Baker City, Oregon. By the evening of the 4th this trough of low pressure had been divided by an area of high pressure which appeared on the south Pacific coast, and two cyclonic centers were shown, one, number III, near the Panhandle of Texas, and the other over eastern Washington and eastern Oregon. The rain area which covered California the morning of the 4th had extended to the middle Mississippi valley, the rainfall was very heavy in eastern Kansas, western Missouri, and southern Iowa, and a wind velocity of 60 miles per hour from the south was noted at Amarillo, Tex. Moving northeastward with a loss of energy this low area had divided by the morning of the 6th, one cyclonic center appearing over Upper Michigan and another over the Lake Erie region. During the 6th the low area dissipated, one part over western Pennsylvania and the other in the Lake Superior region. On the 5th the rain area reached western New England, and destructive wind, rain, hail, and thunder storms were reported in the middle Mississippi and middle and lower Ohio valleys. On the 6th severe thunderstorms occurred in the middle Atlantic states.

IV.—Advanced from the north Pacific coast during the 6th, with pressure below 29.80 over northeastern Oregon at the evening report. On this date rain fell in the Pacific coast states and over west parts of the middle and northern plateau regions, and heavy rain and severe local storms were reported in central and northwestern Texas at night. During the 7th the center advanced to northern New Mexico, with pressure below 29.70, and rain fell from the north Pacific coast to Texas. During the 8th the low area remained nearly stationary over northern Texas and Oklahoma Territory, its advance being impeded by an area of high pressure which extended from the Lake region to the south Atlantic coast.

On this date rain fell generally in the central valleys west of the Mississippi River, severe local storms occurred from central Texas to western Arkansas and western Missouri, and a wind velocity of 66 miles per hour from the southwest was reported at Abilene, Tex. On the 9th the high area to the east and northeast gave way and the center of disturbance advanced to Missouri, with an apparent loss of energy. Rain fell generally throughout the central valleys and on the middle and west Gulf coasts, and severe local storms occurred in southern Missouri, Arkansas, and western Tennessee.

Passing northeastward the center reached Lake Michigan the evening of the 10th, with pressure below 29.70. The rain area reached the Atlantic coast south of New England, and destructive local storms occurred in the Ohio Valley and Tennessee. The morning report of the 11th showed two cyclonic centers with pressure 29.60, one near Grand Haven, Mich., and the other near Toronto, Ont., and at the evening report the low area was central over eastern New York. On this date the rain area extended over New England, and unusually severe hailstorms occurred in west-central Maryland. During the 12th the center moved eastward and disappeared off the Nova Scotia coast.

V.—Occupied New Mexico and northwestern Texas during the 12th and 13th. On these dates severe local storms occurred in eastern Kansas, Oklahoma Territory, Arkansas, and southern Missouri. By the evening report of the 14th the center had advanced to southern Iowa. The rain area extended from the middle Rocky Mountain region to the middle Atlantic coast, and heavy thunder and wind storms occurred from Texas to the lower Ohio valley. During the 15th the center of disturbance moved northeastward over the upper lake region, with pressure below 29.80, the rain area extended over New England, and heavy wind, thunder, and rain storms occurred in Ohio, West Virginia, and Pennsylvania. During the 16th this low area passed eastward to the Gulf of Saint Lawrence, with pres-

sure below 29.60. In the Lake region, the Ohio Valley, and the Atlantic coast states the weather was clearing.

VI.—Was central on the Oregon coast the morning of the 15th with pressure below 29.60, and moved thence to Alberta by the evening report. On this date rain fell on the middle and north Pacific coasts and over the west parts of the middle and northern plateau regions, and the wind reached a velocity of 50 miles per hour from the southwest at Keeler, Cal. On the 16th a trough of low pressure extended along the eastern slope of the Rocky Mountains, with three cyclonic centers at the evening report, one in the Saskatchewan Valley, one over northwestern Nebraska, and a third over the Panhandle of Texas. On this date rain fell in areas between the middle and upper Mississippi river and the Rocky Mountains, and destructive local storms occurred in Kansas, Oklahoma Territory, northern Texas, and western Missouri. On the 17th the center remained over the lower Missouri valley, with pressure below 29.60, rain fell throughout the central valleys, and local storms occurred in the middle and upper Mississippi and lower Ohio valleys.

During the 18th the center advanced to southwestern Wisconsin, with pressure below 29.30, the rain area reached the middle Atlantic coast, heavy northwest gales prevailed in Kansas, South Dakota, Iowa, and Missouri, and severe thunderstorms were noted in Ohio and Tennessee. During the 19th the center remained nearly stationary over southern Lake Michigan, with pressure 29.20 at Milwaukee, Wis., in the morning. The evening report showed a subsidiary development on the middle Atlantic coast. Rain fell generally from the middle Atlantic and south New England coasts to the Rocky Mountains, strong gales prevailed over the Lake region, and snow was reported in northern Wisconsin and northern Minnesota.

On the 20th this low area moved northward to the Lake Superior region with a marked loss of energy, and the subsidiary on the middle Atlantic coast passed eastward, rain was general in districts east of the Rocky Mountains, save in extreme south and southeast states, and snow fell in the upper Mississippi and Red River of the North valleys and in northern New England. The morning of the 21st a trough of low pressure extended from the eastern Lake region to the south Atlantic coast, with two cyclonic centers, one over Virginia and the other over northwestern Pennsylvania. By the evening report the centers had united off the middle Atlantic coast. On this date rain fell generally east of the Mississippi River, and severe thunder and hail storms occurred in North Carolina and Virginia.

VII.—Advanced from the southern plateau region and the evening of the 19th was central over west-central Texas, with pressure below 29.70. During the 20th this low area disappeared over the Gulf of Mexico, where its presence was indicated by reports of the 21st. On the 22d a low pressure area, which was probably a continuation of number VII, moved northeastward off the south Atlantic coast, with pressure 29.60 on the North Carolina coast at 8 p. m. During the 23d this low area advanced to the Maine coast, with pressure below 29.50. Rain fell in the Atlantic coast states, the upper Ohio valley, and the lower lake region, and a heavy hailstorm was reported in West Virginia. During the 24th this low area disappeared north of the Gulf of Saint Lawrence.

VIII.—Appeared in the Saskatchewan Valley the evening of the 21st, with pressure below 29.60, advanced to North Dakota during the 22d, and to Manitoba by the 23d. At the evening report of the 23d the pressure was below 29.60, and rain was reported in the valley of the Red River of the North. Moving rapidly eastward this low area disappeared northeast of the Gulf of Saint Lawrence during the 25th, its passage

being attended by rain over the Lake region, the Ohio Valley, and New England.

IX.—Followed closely after number VIII, and the morning of the 25th was central north of Lake Superior with pressure below 29.50, and by the evening report of that date had advanced north of Lake Huron. Rain fell throughout the Lake region and the Ohio Valley, and severe local storms were reported in Lower Michigan, Ohio, Indiana, and western Pennsylvania. During the 26th the center moved slowly eastward north of the Lake region, rain fell from the lower Missouri valley to the middle Atlantic and New England coasts, and heavy thunder and hail storms occurred from the Ohio Valley and Tennessee to the middle Atlantic coast. By the evening of the 27th the center of disturbance had reached the lower Saint Lawrence valley with pressure below 29.40. The rain area contracted eastward and covered the middle Atlantic and New England states, thunderstorms were reported in the middle and south Atlantic states, and the wind velocity exceeded 50 miles per hour from the northwest on the North Carolina coast. By the morning of the 28th this low area had disappeared over the Gulf of Saint Lawrence.

X.—Appeared over the Saskatchewan Valley on the 26th with pressure below 29.60, passed slowly southeastward over Assiniboia during the 27th with pressure below 29.30 and rain in eastern Montana and the Red River of the North Valley, and was central over Manitoba on the 29th with pressure below 29.20. Moving slowly eastward with a decrease of energy this low area was central north of Lake Superior the evening of the 30th, after which it disappeared.

On the 26th, when this area appeared in the Northwest, a trough of low pressure extended southward over the Rocky Mountain region to western Texas, and severe local storms occurred in north-central Texas. The morning report of the 27th showed that the barometric depression running southward from the Saskatchewan Valley had deepened; the 12-hour pressure change exceeded .20 over the west part of Nebraska and the Dakotas, and the 24-hour pressure change was .40 to .50 in that region. The evening report showed a 12-hour decrease of pressure of .30 from northeastern Kansas to Manitoba.

A notable feature of this low area was the group of tornadoes and thunderstorms which extended from South Dakota to central Texas during the evening of the 27th. These storms were very severe, and the one which visited Wellington, Kans., was notably destructive to life and property. On the 28th the rain area extended over the central valleys and the western Lake region, and heavy thunderstorms were reported in Missouri and Illinois. During the 29th the rain area reached the Atlantic coast. A subsidiary development appeared over Oklahoma Territory at the evening report, heavy thunder and hail storms occurred in Kentucky, Tennessee, and Alabama, and severe local storms were reported in Oklahoma Territory and adjoining parts of Kansas and Missouri.

XI.—Appeared on the southeast slope of the Rocky Mountains on the 29th, and the evening of the 30th was apparently central over extreme western Texas, with pressure below 29.60, and heavy thunder and hail storms in Oklahoma, Kansas, Missouri, and Illinois. The morning of the 31st two cyclonic centers appeared, one over central Texas and the other over central Missouri. At the close of the month a trough of low pressure extended from Lake Michigan to the lower Rio Grande valley, with two cyclonic centers, one over western Illinois and the other over southeastern Texas. On this date rain fell generally from the western Lake region to the Rio Grande River, and severe local storms occurred from the west Gulf states to the lower Ohio valley and the southwestern Lake region.

Tabulated statement showing principal characteristics of areas of high and low pressure.

Barometer.	First observed.			Last observed.			Duration.	Velocity per hour.	Maximum pressure change in 12 hours, maximum abnormal temperature change in 12 hours, and maximum wind velocity.																	
	Date.	Lat. N.	Long. W.	Lat. N.	Long. W.	Station.			Rise.	Date.	Station.	Fall.	Date.	Station.	Direction.	Miles per hour.	Date.									
High areas.		°	°	°	°	Days.	Miles.			Inch.				°												
I.....	3	47	107	35	85	1.0	58		Rockliffe, Ont.....	.50	4	Saugeen, Ont.....	24	4	Chattanooga, Tenn.....	ne.	30	4								
II.....	6	53	105	44	62	4.5	20		White River, Ont.....	.36	7	Davenport, Iowa.....	16	6	Chicago, Ill.....	n.	44	8								
III.....	11	54	102	40	70	2.5	35		Sydney, C. B. I.....	.34	13	Calgary, N. W. T.....	20	11	Green Bay, Wis.....	n.	25	12								
IV.....	14	42	104	32	79	2.0	35		Montrose, Colo.....	.34	14	Palestine, Tex.....	19	15	Hatteras, N. C.....	sw.	22	16								
V.....	17	45	125	28	93	2.0	44		Roseburg, Oregon.....	.32	16	Saint Paul, Minn.....	23	18	Galveston, Tex.....	n.	30	18								
VI.....	18	48	125	32	78	6.0	27		Green Bay, Wis.....	.42	20	Tucson, Ariz.....	26	19	Amarillo, Tex.....	n.	40	21								
VII.....	26	47	97	35	77	1.5	41		Rockliffe, Ont.....	.34	28	Pittsburg, Pa.....	15	26	Hatteras, N. C.....	n.	36	28								
VIII.....	30	50	108	49	96	1.5	18		Winnipeg, Man.....	.38	30	Abilene, Tex.....	35	31	Bismarck, N. Dak.....	nw.	25	30								
Mean.....						2.7	35			.37			22					32								
Low areas.										Fall.			Rise.													
I.....	1	38	100	43	85	1.0	37		Montreal, Quebec.....	.40	1	Dubuque, Iowa.....	16	1	Chicago, Ill.....	sw.	60	3								
II.....	2	37	95	49	69	2.5	24		Chatham, N. B.....	.36	4	New York, N. Y.....	24	4	Buffalo, N. Y.....	sw.	44	3								
III.....	3	41	123	47	87	2.5	40		Dodge City, Kans.....	.30	4	Kansas City, Mo.....	26	5	Amarillo, Tex.....	n.	60	4								
IV.....	6	45	118	43	66	5.5	28		Toronto, Ont.....	.34	10	Montrose, Colo.....	16	6	Abilene, Tex.....	sw.	66	8								
V.....	14	30	99	49	64	2.5	37		Eastport, Me.....	.36	16	Duluth, Minn.....	16	15	Boston, Mass.....	w.	36	16								
VI.....	15	45	123	42	69	7.0	27		Erie, Pa.....	.36	18	Roseburg, Oregon.....	17	16	Fort Canby, Wash.....	n.	60	16								
VII.....	19	32	101	28	98	0.5	30		Abilene, Tex.....	.28	19	Tucson, Ariz.....	32	18	Abilene, Tex.....	sw.	48	19								
VIII.....	21	52	112	50	66	3.5	27		Swift Current, N. W. T.....	.52	21	Cheyenne, Wyo.....	26	22	Block Island, R. I.....	sw.	40	25								
IX.....	25	50	88	50	65	3.0	19		Montreal, Quebec.....	.50	26	Father Point, Quebec.....	19	27	Kitty Hawk, N. C.....	nw.	53	27								
X.....	26	53	108	50	87	4.0	11		do.....	.50	26	Miles City, Mont.....	15	26	Huron, S. Dak.....	se.	54	27								
XI.....	30	33	103	29	99	1.0	30		Fort Smith, Ark.....	.14	30	Abilene, Tex.....	11	29	Corpus Christi, Tex.....	se.	48	31								
Mean.....						3.0	28			.38			20					52								

NORTH ATLANTIC STORMS FOR MAY, 1892 (pressure in inches and millimeters; wind-force by Beaufort scale).

The paths of storms that appeared over the west part of the north Atlantic Ocean during May, 1892, are shown on Chart I. These paths have been determined from reports of observations by shipmasters received through the co-operation of the Hydrographic Office, Navy Department, and the "New York Herald Weather Service."

In May there is usually an increase of barometric pressure over the north Atlantic Ocean, save in the region of the Cape Verde Islands and over the West Indies and the Caribbean Sea, the increase being most marked over and east of the Banks of Newfoundland, when it is more than .20. The principal track of May storms is traced from Newfoundland north of east to the region north of the British Isles. Near the 40th meridian a track branches northeastward to Iceland, and west of the British Isles a path branches southeastward over the Bay of Biscay.

The storms of the current month were of small intensity and generally short-lived. Reports of the 1st showed two storms, one over the Banks of Newfoundland and the other west of the British Isles. Over mid-ocean the pressure was high. By the 2d the western storm had passed north of the region of observation; the one near the British Isles had advanced to the Bay of Biscay with evidence of considerable strength. This storm apparently remained central over or near the Bay of Biscay until the 4th, and the pressure continued high west of the 25th meridian. From the 5th to 14th the pressure continued high over the eastern part of the ocean.

On the 5th low area II advanced over the north part of the Gulf of Saint Lawrence, and on the 6th was central north of Newfoundland. This storm occupied the region east and northeast of the Banks of Newfoundland until the 11th, with an apparent increase of energy, after which it disappeared over mid-ocean in high latitudes. A storm also appeared central near the Azores on the 5th, and the pressure continued low over mid-ocean until the 12th. On the 12th low area IV was central near western Nova Scotia, from which position it moved northeastward and disappeared by the following date.

From the 13th to the 16th the pressure was high over mid-ocean, and high pressure continued over the western part of the ocean from the 14th to 16th. From the 15th to 17th the pressure was low north and west of the British Isles. On the 17th low area V advanced over northern Newfoundland, and

on the 18th was central northeast of Newfoundland, and strong to whole gales prevailed along the trans-Atlantic tracks between the 30th and 40th meridians. On the 19th a storm appeared east of the Grand Banks, and moving thence northeastward disappeared over mid-ocean in high latitudes by the 21st. From the 17th until the close of the month the pressure continued generally low over mid-ocean. From the 22d to 24th a storm of moderate strength passed from the south Atlantic coast to the lower Saint Lawrence river. This storm probably moved eastward and reached the British Isles on the 29th, where low pressure prevailed from the 22d to the close of the month.

OCEAN ICE IN MAY.

The following table shows the southern and eastern limits of the region within which icebergs or field ice were reported for May during the last 10 years:

Southern limit.			Eastern limit.		
Month.	Lat. N.	Long. W.	Month.	Lat. N.	Long. W.
May, 1883.....	40 30	47 00	May, 1883.....	45 40	45 12
May, 1884.....	41 30	47 30	May, 1884.....	43 30	44 50
May, 1885.....	40 50	48 15	May, 1885.....	42 30	40 10
May, 1886.....	41 36	51 30	May, 1886.....	48 55	46 13
May, 1887.....	39 38	46 00	May, 1887.....	39 38	46 00
May, 1888.....	41 00	46 00	May, 1888.....	41 00	46 00
May, 1889.....	43 07	53 47	May, 1889.....	49 46	36 48
May, 1890.....	40 50	50 28	May, 1890.....	44 12	36 25
May, 1891.....	40 49	49 07	May, 1891.....	48 00	45 00
May, 1892.....	42 14	51 20	May, 1892.....	45 05	41 14
Mean.....	41 14	49 17	Mean.....	44 50	42 48

* On the 7th three small pieces of ice were reported in N. 49° 03', W. 33° 40'.

The limits of the region within which icebergs or field ice were reported for May, 1892, are shown on Chart I by ruled shading.

The southernmost ice reported, icebergs observed on the 31st in the position given, was about 1° north of the average southern limit, and the easternmost ice reported, an iceberg noted on the 23d in the position given in the table, was about 1½° west of the average eastern limit of Arctic ice for May.

Ice was reported in great quantities along the southeast edge of the Banks of Newfoundland, and on the 31st a small

ice floe was encountered in N. 44° 33', W. 60° 22', and another in N. 44° 29', W. 60° 37'.

OCEAN FOG IN MAY.

The limits of fog belts for May, 1892, as determined from reports of shipmasters, are shown on Chart I by dotted shading. Less than the usual amount of fog was reported. Near the Banks of Newfoundland fog was reported on 12 dates; between the 55th and 65th meridians on 11 dates; and

west of the 65th meridian on 11 dates. Compared with the corresponding month of the last 4 years the dates of occurrence of fog near the Grand Banks numbered 6 less than the average; between the 55th and 65th meridians 3 less than the average; and west of the 65th meridian 6 less than the average. The fog in the regions referred to and that noted at regular stations of the Weather Bureau on the New England and middle Atlantic coasts generally attended the approach or passage of general storms.

TEMPERATURE OF THE AIR (expressed in degrees, Fahrenheit).

The distribution of mean temperature over the United States and Canada for May, 1892, is exhibited on Chart II by dotted isotherms. In the table of miscellaneous meteorological data the monthly mean temperature and the departure from the normal are given for regular stations of the Weather Bureau. The figures opposite the names of the geographical districts in the columns for mean temperature and departure from the normal show, respectively, the average for the several districts. The normal for any district may be found by adding the departure to the current mean when the temperature is below the normal and subtracting when above. The monthly mean temperature for regular stations of the Weather Bureau represents the mean of the maximum and minimum temperatures.

The mean temperature was highest in the Colorado Desert, California, in the Gila Valley, Arizona, and along the lower Rio Grande River in Texas, where it was above 80. In districts east of the 100th meridian and south of the 35th parallel, and over the west part of the southern plateau region the mean temperature was above 70, and the mean readings were above 60 south of a line traced from the south New Jersey coast westward to northern Missouri, thence west-southwest to east-central Arizona, thence irregularly north-westward to north-central Arizona, and thence southward over the interior of California to the coast near Los Angeles. The mean temperature was lowest in the mountains of Colorado and at Anticosti Island, Gulf of Saint Lawrence, where it was below 40; it was below 45 at Central Pacific Railroad stations in the Sierra Nevada Mountains, California, and in the British Northwest Territory; and was below 50 in eastern and northern Maine, and north of a line traced from Georgian Bay to north-central New Mexico, and thence to extreme northwestern Montana.

DEVIATIONS FROM NORMAL TEMPERATURE.

The following table shows for certain stations, as reported by voluntary observers, (1) the normal temperature for May for a series of years; (2) the length of record during which the observations have been taken, and from which the normal has been computed; (3) the mean temperature for May, 1892; (4) the departure of the current month from the normal; (5) and the extreme monthly mean for May during the period of observation and the years of occurrence:

State and station.	(1) Normal for the month of May.	(2) Length of record.	(3) Mean for May, 1892.	(4) Departure from normal.	(5) Extreme monthly mean for May.			
					Highest.	Year.	Lowest.	Year.
<i>Arizona.</i>	°	Years	°	°	°		°	
Fort Apache.....	63.4	20	56.8	- 5.6	67.6	1881	55.6	1884
Fort Mohave.....	80.2	21	77.7	- 2.5	86.8	1875	75.6	1888
Whipple Barracks.....	60.7	31	54.3	- 6.4	68.6	1870	54.3	1892
<i>Arkansas.</i>								
Lind Hill.....	67.6	10	.....	.....	74.4	1886	62.9	1882
<i>California.</i>								
Fort Blawell.....	55.0	20	52.8	- 2.2	61.8	1881	49.2	1879
Riverside.....	65.3	10	64.9	- 0.6	69.0	1885	60.3	1891
<i>Colorado.</i>								
Las Animas.....	60.1	20	54.1	- 6.0	65.6	1886	54.1	1892
<i>Florida.</i>								
Merritts Island.....	75.4	10	78.3	+ 2.9	79.2	1884	70.3	1886

Deviations from normal temperature—Continued.

State and station.	(1) Normal for the month of May.	(2) Length of record.	(3) Mean for May, 1892.	(4) Departure from normal.	(5) Extreme monthly mean for May.			
					Highest.	Year.	Lowest.	Year.
<i>Georgia.</i>	°	Years	°	°	°		°	
Forsyth.....	72.7	18	73.4	+ 0.7	75.8	1880	69.2	1877
<i>Idaho.</i>								
Boise Barracks.....	58.7	18	55.6	- 3.1	63.5	1874	53.0	1880
Fort Sherman.....	54.9	9	53.4	- 1.5	57.9	1891	51.5	1882
<i>Illinois.</i>								
Centralia.....	64.8	11	.....	.....	70.5	1881	59.0	1882, 1891
<i>Indiana.</i>								
La Fayette.....	61.0	12	58.8	- 2.2	69.4	1881	55.0	1882
<i>Indian Territory.</i>								
Fort Supply.....	65.5	13	63.8	- 1.7	72.1	1886	58.8	1882
<i>Iowa.</i>								
Cresco.....	56.4	20	52.4	- 4.0	64.1	1881	49.9	1888
<i>Kansas.</i>								
Eureka Ranch.....	64.6	9	55.0	- 9.6	69.5	1887	55.0	1892
Independence.....	66.3	20	65.0	- 1.3	72.0	1880	60.8	1872
Salina.....	66.0	9	58.4	- 7.6	71.3	1887	58.4	1892
<i>Louisiana.</i>								
Grand Coteau.....	74.2	9	73.8	- 0.4	75.7	1884	70.4	1891
<i>Maine.</i>								
Orono.....	51.7	22	51.7	0.0	55.9	1887	41.8	1884
<i>Maryland.</i>								
Cumberland.....	60.0	29	62.3	+ 2.3	67.0	1880	57.6	1882
<i>Michigan.</i>								
Kalamazoo.....	57.5	15	57.2	- 0.3	66.0	1881	41.3	1882
<i>Missouri.</i>								
Sedalia.....	64.5	9	62.2	- 2.3	69.5	1887	60.1	1882
<i>Montana.</i>								
Fort Custer.....	55.1	11	.....	.....	58.3	1886	52.2	1888
<i>Nebraska.</i>								
Fort Robinson.....	57.3	8	48.9	- 8.4	66.4	1886	48.9	1892
Genoa (near).....	59.9	16	52.2	- 7.7	67.6	1880	52.2	1892
<i>Nevada.</i>								
Browns.....	65.4	20	66.2	+ 0.8	71.3	1889	60.5	1873
Carson City.....	57.2	14	54.6	- 2.6	60.4	1875	53.9	1891
<i>New Hampshire.</i>								
Hanover.....	54.4	57	52.7	- 1.7	62.0	1880	50.2	1882
<i>New Mexico.</i>								
Deming.....	74.0	10	76.1	+ 2.1	79.2	1886	69.8	1884
Fort Wingate.....	60.1	21	54.2	- 5.9	64.9	1875	54.2	1892
<i>New York.</i>								
Cooperstown.....	54.5	38	52.4	- 2.1	60.7	1880, 1887	49.7	1882
Plattsburgh Barracks.....	54.9	21	51.8	- 3.1	60.9	1887	50.3	1882
<i>North Carolina.</i>								
Lenoir.....	62.6	19	64.6	+ 2.0	67.8	1887	48.0	1881
<i>Oklahoma.</i>								
Fort Reno.....	67.3	9	.....	.....	73.9	1886	64.0	1885
Fort Sill.....	69.8	20	68.8	- 1.0	75.6	1886	64.7	1885
<i>Oregon.</i>								
Bandon.....	54.3	8	51.8	- 2.5	55.8	1891	51.8	1892
Eola.....	54.2	22	59.6	+ 5.4	59.6	1892	45.2	1880
<i>Pennsylvania.</i>								
Dyberry.....	54.3	25	51.6	- 2.7	64.1	1880	48.4	1882
Grampian Hills.....	56.5	27	56.5	0.0	65.1	1887	50.0	1882
Wellsborough.....	55.8	13	50.6	- 5.2	68.4	1879	50.4	1891
<i>South Carolina.</i>								
Statesburgh.....	70.1	11	70.2	+ 0.1	73.8	1881	65.9	1885
<i>South Dakota.</i>								
Fort Sully.....	58.7	21	50.6	- 8.1	68.4	1871	50.6	1892
<i>Texas.</i>								
Austin.....	74.6	17	75.0	+ 0.4	80.0	1886	72.3	1879
Silver Falls.....	69.9	6	70.0	+ 0.1	76.6	1886	65.8	1888
<i>Utah.</i>								
Terrace.....	61.6	20	62.8	+ 1.2	71.9	1888	50.6	1882
<i>Vermont.</i>								
Stratford.....	55.6	19	48.2	- 7.4	63.0	1887	45.2	1892
<i>Virginia.</i>								
Dale Enterprise.....	64.3	12	65.0	+ 0.7	72.0	1887	62.7	1891
<i>Washington.</i>								
Fort Townsend.....	54.0	20	52.4	- 1.6	57.0	1889	50.2	1880
<i>West Virginia.</i>								
Parkersburg.....	67.4	11	62.1	- 5.3	78.4	1881	58.9	1891
<i>Wisconsin.</i>								
Embarrass.....	57.6	21	53.0	- 4.6	67.5	1880	51.2	1888
Madison.....	56.5	23	52.4	- 4.1	63.8	1887	51.5	1883
<i>Wyoming.</i>								
Fort Washakie.....	52.3	9	47.6	- 4.7	59.2	1886	47.6	1892

DEPARTURES FROM NORMAL TEMPERATURE.

The mean temperature was generally below the normal. It was above the normal along the immediate Pacific coast, over the greater part of Texas, in northeastern Florida, Virginia, northern North Carolina, the east part of the upper lake region, and in New Brunswick. The most marked departure below the normal temperature was noted from the Rocky Mountains to the upper Mississippi and lower Missouri valleys, where it was more than 5. In the districts named where the temperature was above the normal the excess was generally less than 1, except at San Antonio, Tex., where it was 3.2.

YEARS OF HIGHEST MEAN TEMPERATURE FOR MAY.

At Eola, Oregon, the mean temperature for the current month, 59.6, was 0.5 higher than previously recorded for that place for May. The highest mean temperature for May occurred in Washington in 1889; in Oregon in 1888; over the southern plateau region and on the southeast slope of the Rocky Mountains in 1886; in the Sacramento Valley and on the south Pacific coast in 1885; in the upper and lower Mississippi and middle Ohio valleys in 1881; and in the middle Atlantic and New England states, the Lake region, a great part of Kentucky and Tennessee, and in Arkansas and the lower Missouri valley in 1880.

YEARS OF LOWEST MEAN TEMPERATURE FOR MAY.

The current month was the coolest May on record from the middle and lower Missouri and Red River of the North valleys over the northern plateau region and the eastern parts of the middle and southern plateau regions. The lowest mean temperature for May occurred generally in the middle Atlantic and New England states, over the eastern part of the Lake region, and in Tennessee and the Ohio and middle Mississippi valleys in 1882; in Oregon and Nevada in 1880; and in northern California in 1879.

MAXIMUM TEMPERATURE.

At Buffalo, N. Y., the maximum temperature, 88, noted on the 31st, was the highest ever recorded at that station in May.

The highest temperature reported at a regular station of the Weather Bureau for May, 1892, was 110 at Yuma, Ariz., on the 20th, and the maximum was 100 and above in the Gila, San Joaquin, and Sacramento valleys. Reports of voluntary observers show maximum temperature 119 in the Colorado Desert, California, 115 at Fort Mohave, Ariz., and 109 at Fort Ringgold, Tex. The maximum was above 90 in Virginia, north-central North Carolina, Georgia, eastern Alabama, over the Florida Peninsula, in the west Gulf states, except along the coast, over the southern plateau region, in the central valleys of California, and in the valley of the Columbia River. On the east and southeast New England coasts and at Tatoosh Island, Wash., and Eureka, Cal., the maximum temperature was below 70.

MINIMUM TEMPERATURE.

At Shreveport, La., Palestine, Tex., and Walla Walla, Wash., the minimum temperature for the current month was the lowest, and at Portland, Me., and Galveston, Tex., it was as low as previously reported for May.

The lowest temperature reported at a regular station of the Weather Bureau in May, 1892, was 20 at Lander, Wyo., on the 5th. Minimum temperature below 30 was noted in northern New England, northeastern New York, and north of a line traced from northeastern Minnesota to north-central New Mexico, thence to northern Utah, thence to east-central California, and thence to extreme northwestern Montana. The highest minimum temperature was noted over extreme southern Florida and in extreme southern Texas, where it was above 60.

LIMITS OF FREEZING WEATHER.

The southern limit of freezing weather is shown on Chart II by a line traced from the west Maine coast over northeastern New York. This line is continued from northern Lower Michigan and Upper Michigan west-southwest to central New Mexico, thence to northern Utah, thence to east-central California, and thence over eastern Oregon and eastern Washington.

RANGES OF TEMPERATURE.

The greatest daily ranges of temperature are shown in the table of miscellaneous meteorological data. The greatest monthly ranges of temperature were noted over Montana, the west parts of the Dakotas, over the west parts of the middle and southern plateau regions, and in adjoining parts of Oregon and northern California, where they exceeded 60. From the Missouri Valley the monthly ranges decreased irregularly eastward to less than 30 on the southeast New England coast, and southeastward to less than 20 over extreme southern Florida and extreme southern Louisiana. From the western plateau region the monthly ranges decreased to less than 30 at points on the Pacific coast north of the 40th parallel.

PERIODS OF HIGH TEMPERATURE.

On the 18th and 19th the highest temperature of the month occurred on the immediate Pacific coast. This warm wave overspread western Oregon, western Washington, and the west part of the southern plateau on the 20th, with temperature above 90 at interior stations, and readings above 100 in the lower Colorado and Gila valleys. On the 21st the temperature rose above 90 at points in the upper Columbia valley, and the maximum was above 100 in the Sacramento and San Joaquin valleys. On the 22d the highest temperature of the month was noted in the upper Missouri valley and over a great part of the middle and northern plateau regions, and the 23d was the warmest day of the month in Utah, Colorado, and a great part of Nebraska. On the 29th a warm wave appeared over the middle Missouri valley and the southeastern slope of the Rocky Mountains, with maximum temperature 100 at Abilene, Tex. On the 30th the highest temperature of the month was noted over the north part of the Lake region and in the west Gulf states, and on the 31st the maximum temperature of the month was recorded from the lower lake region over the Ohio Valley, eastern Tennessee, and northern Alabama.

PERIODS OF LOW TEMPERATURE.

The lowest temperature of the month was noted on the 1st in New England and along the North Carolina coast, the minimum being 2 to 3 below freezing in eastern and northern New England. The coolest weather of the month occurred from northern California and northern Nevada over Oregon, Washington, and western Montana from the 1st to 3d. On the 4th this cold wave reached the Dakotas, with temperature 8 to 11 below freezing in North Dakota. The 7th was the coldest day of the month in Upper Michigan. On the 8th this cold wave extended over the lower lake region, Pennsylvania, and New Jersey, and on the 9th the lowest temperature of the month occurred in Virginia and North Carolina.

The 10th was the coolest day of the month on the southeast slope of the Rocky Mountains, and the lowest temperature of the month was noted on the middle Pacific coast on the 11th. On the 20th a cool wave overspread districts from the middle Missouri and Red River of the North valleys to the western Lake region, with temperature 4 to 7 below freezing in the Red River Valley. On the 21st this cool wave occupied the lower Missouri, middle Mississippi, and lower Ohio valleys, reached the middle and west Gulf states on the 22d, and the south Atlantic states and Florida on the 24th, attended in the districts named by the lowest temperature of the month.

TEMPERATURE JANUARY TO MAY.

For the period January to May, 1892, inclusive, the tempera-

ture was below the average, except in New England, the upper lake region, the extreme northwest, on the southeast slope of the Rocky Mountains, over the northern plateau region, and on the north Pacific coast. In the upper lake region, on the northeast and southeast slopes of the Rocky Mountains, and along the middle and south Pacific coasts the departures were small. In the middle and south Atlantic and east Gulf states, at Key West, Fla., in the Ohio Valley and Tennessee, the lower lake region, the upper Mississippi and Missouri valleys, on the middle-eastern slope of the Rocky Mountains, and over the southern and middle plateau regions the mean was 1 to 2 below the normal, and in New England, the extreme northwest, over the northern plateau region, and along the north Pacific coast the mean was 1 to 2 above the normal temperature for the period named.

FROST.

Frost injurious to vegetation was reported as follows: On the 10th light frost occurred at Dodge City, Kans., causing some damage on low lands. Frost at Valley Head, Ala., on the 12th, 23d, and 25th nipped tender vegetation on the mountains. The cool weather of the 22d injured cotton about Palestine, Tex. Light frost at Liberty Hill, La., on the 22d and 23d injured tender vegetation. Fruit was reported slightly injured by the light frost of the 23d at Pontotoc, Miss. Frost was reported about Hendersonville, N. C., on the 24th.

The cool wave of the 22d to 24th carried the frost line to the central parts of the Gulf and south Atlantic states. No frost was reported in Texas. Frost occurred in the Sacramento valley, California, on the 11th, and in interior parts of Oregon and Washington from the 1st to 4th.

PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada for May, 1892, as determined from the reports of about 2,000 stations, is exhibited on Chart III. In the table of miscellaneous meteorological data the total precipitation and the departure from the normal are given for regular stations of the Weather Bureau. The figures opposite the names of the geographical districts in the columns for precipitation and departure from the normal show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the precipitation is below the normal and subtracting when above.

The normal precipitation for May is greatest in areas in eastern Texas and western Missouri, where it exceeds 6.00. It exceeds 4.00 over the greater part of the region extending from the middle and lower Missouri valleys to the middle and west coasts of the Gulf of Mexico, generally in Tennessee and North Carolina, and along the South Carolina and east Florida coasts. The normal amount is also in excess of 4.00 at points on the north Pacific coast, and in adjoining parts of southwestern Montana and northwestern Wyoming. In districts east of the Rocky Mountains other than those named the normal precipitation generally ranges from 2.00 to 4.00. Over the greater part of the plateau region and on the Pacific coast south of the 40th parallel the precipitation for May is usually less than 1.00, and over the west parts of the middle and southern plateau regions and in southern California it is less than 0.50.

In May, 1892, the greatest monthly precipitation reported was 18.48 at McAlester, Ind. T. The monthly precipitation exceeded 10.00 in extreme southwestern New York, northwestern Ohio, northeastern Indiana, north-central Illinois, extreme southwestern Michigan, southwestern Wisconsin, southern and eastern Iowa, north-central and southwestern Missouri, central and western Arkansas, eastern Oklahoma and Indian territories, northeastern Texas, eastern Kansas, and southeastern Nebraska. Over the greater part of the southern plateau region and the west part of the middle plateau region, in north-central Oregon, northwestern Montana, northwestern North Dakota, in parts of the Saskatchewan Valley, northern and eastern Ontario, in an area about Vicksburg, Miss., at points along the middle and west coasts of the Gulf of Mexico, and at Key West, Fla., the monthly precipitation was less than 1.00, and over the greater part of the southern plateau region it was less than 0.50.

DEPARTURES FROM NORMAL PRECIPITATION.

The monthly precipitation was in excess of the average amount for May from northern Texas to Minnesota and the western and southern Lake regions, in central and southern New England, and in the middle Atlantic states north of Virginia. It was also in excess on the Pacific coast and over

the Rocky Mountain and plateau regions, except in an area extending from Washington to northern Utah, over northern Montana, and from eastern Colorado over New Mexico. The greatest excess in monthly precipitation occurred in western Arkansas, where it exceeded 6.00 at Fort Smith, and the excess was more than 4.00 from eastern Iowa over southern Wisconsin, and from northern Indiana over Lake Erie. The most marked deficiency in monthly precipitation was noted at Vicksburg, Miss., where it exceeded 4.00. The deficiency was 4.00 at Galveston, Tex., and was more than 2.00 over the southern parts of the east and west Gulf states, and in southern North Carolina and eastern Maine.

Considered by districts, the average percentage of the normal in districts where the monthly precipitation was in excess was about as follows: South Pacific coast, 400; middle Pacific coast, 263; lower Lake region, 204; upper Mississippi valley, 177; Missouri Valley, 159; upper Lake region, 149; middle-eastern slope and middle plateau region, 139; middle Atlantic states, 132; Ohio Valley and Tennessee, 123; New England, 122; north Pacific coast, 121; southeastern slope, 119; northeastern slope, 116; northern plateau, 112. In districts where the precipitation was deficient the percentage of the normal was about as follows: East Gulf states, 32; Key West, Fla., 24; south Atlantic states, 72. In the west Gulf states, over the southern plateau region, and in the extreme northwest the monthly precipitation averaged about normal.

DEVIATIONS FROM AVERAGE PRECIPITATION.

The following table shows for certain stations, as reported by voluntary observers, (1) the average precipitation for May for a series of years; (2) the length of record during which the observations have been taken and from which the average has been computed; (3) the total precipitation for May, 1892; (4) the departure of the current month from the average; (5) and the extremes for May during the period of observation and the years of occurrence:

State and station.	(1) Average for the month of May.	(2) Length of record.	(3) Total for May, 1892.	(4) Departure from average.	(5) Extremes for May.			
					Greatest.		Least.	
					Am't.	Year.	Am't.	Year.
<i>Arizona.</i>	<i>Inches.</i>	<i>Years.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>		<i>Inches.</i>	
Fort Apache.....	0.47	16	0.36	- 0.11	1.31	1884	0.00	*
Fort Mohave.....	0.18	21	0.38	+ 0.23	1.20	1873	0.00	*
Whipple Barracks.....	0.58	21	0.85	+ 0.27	1.82	1877	0.00	*
<i>Arkansas.</i>								
Lead Hill.....	5.93	10	8.50	+ 2.57	10.56	1882	1.97	1891
<i>California.</i>								
Fort Bidwell.....	1.35	21	1.57	+ 0.22	4.66	1877	0.40	1884
Riverside.....	0.34	11	1.30	+ 0.96	1.99	1884	0.00	1886
<i>Colorado.</i>								
Las Animas.....	2.06	10	1.13	- 0.93	5.06	1882	0.25	1886
<i>Florida.</i>								
Merritts Island.....	4.04	14	3.13	- 0.91	11.58	1890	0.88	1886

Deviations from average precipitation—Continued.

State and station.	(1) Average for the month of May.	(2) Length of record.	(3) Total for 1892.	(4) Departure from average.	(5) Extremes for May.			
					Greatest.		Least.	
					Am't.	Year.	Am't.	Year.
<i>Georgia.</i>	<i>Inches.</i>	<i>Years.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>		<i>Inches.</i>	
Forayth	3.13	18	2.76	- 0.37	7.31	1890	0.45	1877
<i>Idaho.</i>								
Boise Barracks	1.39	18	3.51	+ 2.22	3.51	1892	0.07	1881
Fort Sherman	1.63	9	2.15	+ 0.52	3.00	1883	0.66	1884
<i>Illinois.</i>								
Centralia	3.73	12	7.02	+ 3.29	7.02	1892	2.30	1881
<i>Indiana.</i>								
La Fayette	4.63	12	8.79	+ 4.16	8.79	1892	1.98	1891
<i>Indian Territory.</i>								
Fort Supply	3.65	13	4.48	+ 0.83	7.84	1883	0.06	1886
<i>Iowa.</i>								
Cresco	3.37	20	6.15	+ 2.78	7.89	1880	0.76	1874
<i>Kansas.</i>								
Independence	4.35	20	10.64	+ 6.29	10.64	1892	0.92	1879
Salina	3.92	9	5.75	+ 1.83	8.92	1889	0.27	1888
<i>Louisiana.</i>								
Grand Coteau	5.06	9	3.83	- 1.23	14.03	1884	0.21	1889
<i>Maine.</i>								
Orono	3.56	22	1.94	- 1.62	10.52	1890	1.25	1887
<i>Maryland.</i>								
Cumberland	3.23	20	3.31	+ 0.08	7.13	1890	0.30	1875
<i>Michigan.</i>								
Kalamazoo	4.07	15	7.04	+ 2.97	7.04	1892	1.44	1885
<i>Missouri.</i>								
Sedalia	4.60	13	10.47	+ 5.87	10.47	1892	0.97	1879
<i>Montana.</i>								
Fort Custer	2.04	12	.....	.....	5.63	1880	0.47	1885
<i>Nebraska.</i>								
Fort Robinson	2.93	8	5.02	+ 2.09	6.39	1888	1.24	1886
Genoa (near)	4.08	16	6.01	+ 1.93	7.80	1877	0.83	1880
<i>Nevada.</i>								
Brown	0.30	20	0.10	- 0.20	1.10	1887	0.00	*
Carson City	0.63	14	0.54	- 0.09	2.80	1891	0.04	1880
<i>New Hampshire.</i>								
Hanover	3.18	46	6.26	+ 3.08	6.26	1892	0.81	1879
<i>New Mexico.</i>								
Deming	0.20	10	.....	.....	0.77	1885	0.00	*
Fort Wingate	0.49	20	0.33	- 0.16	3.00	1872	0.00	1879
<i>New York.</i>								
Cooperstown	3.42	38	7.82	+ 4.40	8.84	1890	0.36	1879
Plattsburgh Barracks ..	3.49	21	4.07	+ 1.58	5.00	1890	0.18	1879
<i>North Carolina.</i>								
Lenoir	4.77	20	4.40	- 0.37	11.50	1873	1.60	1881, 1883
<i>Oklahoma.</i>								
Fort Reno	3.86	9	7.37	+ 3.51	9.33	1885	0.31	1886
Fort Sill	4.70	20	7.20	+ 2.50	9.74	1880	0.07	1886
<i>Oregon.</i>								
Bandon	3.26	14	6.13	+ 2.87	7.79	1879	0.23	1890
Eola	1.93	22	1.78	- 0.15	5.94	1879	0.26	1890
<i>Pennsylvania.</i>								
Dyberry	3.01	22	5.79	+ 2.78	5.79	1892	0.36	1875
Grampian Hills	4.19	20	.....	.....	11.60	1889	1.29	1891
Wellsborough	5.05	13	6.69	+ 1.64	9.36	1884	1.30	1891
<i>South Carolina.</i>								
Statesburgh	3.67	11	2.90	- 0.77	6.68	1888	1.24	1882
<i>South Dakota.</i>								
Fort Sully	2.57	31	2.65	+ 0.08	5.05	1874	0.36	1884
<i>Texas.</i>								
Austin	4.19	17	2.95	- 1.24	8.40	1885	T.	1886
Silver Falls	1.75	6	0.70	- 1.05	4.25	1887	0.01	1886
<i>Utah.</i>								
Terrace	0.40	20	0.30	- 0.10	1.20	1891	0.00	*
<i>Vermont.</i>								
Stratford	3.25	19	7.00	+ 3.75	7.60	1890	0.40	1877
<i>Virginia.</i>								
Dale Enterprise	5.62	12	2.88	- 2.74	12.66	1886	1.06	1880
<i>Washington.</i>								
Fort Townsend	1.85	18	2.90	+ 1.05	7.81	1875	0.30	1891
<i>West Virginia.</i>								
Parkersburg	3.38	7	5.05	+ 1.67	5.84	1890	1.05	1885
<i>Wisconsin.</i>								
Embarrass	4.54	21	9.65	+ 5.11	9.65	1892	0.25	1891
Madison	3.60	24	6.98	+ 3.38	6.98	1883, 1892	1.02	1877
<i>Wyoming.</i>								
Fort Washakie	2.62	9	3.51	+ 0.89	5.77	1882	0.41	1887

* Frequently.

PRECIPITATION, JANUARY TO MAY, 1892.

For the period January to May, 1892, inclusive, the precipitation averaged about normal in the east Gulf states, the Ohio Valley and Tennessee; over the northern plateau region, and along the south Pacific coast. In the lower lake region, the Missouri and upper Mississippi valleys, on the northeast and middle-eastern slopes of the Rocky Mountains, and over the southern plateau region the precipitation was one-fourth to one-half greater, and in the middle Atlantic states, in the upper lake region, the extreme northwest, and over the middle plateau region it was one-tenth to two-tenths greater than usual. In New England, the south Atlantic states, at Key West, Fla., in the west Gulf states, on the southeast slope of the Rocky

Mountains, and along the north and middle Pacific coasts the precipitation was six-tenths to nine-tenths of the normal amount for the period named.

YEARS OF GREATEST PRECIPITATION FOR MAY.

At Northfield, Vt., Hanover, N. H., Buffalo, N. Y., Erie and Dyberry, Pa., Cleveland and Toledo, Ohio, Detroit and Kalamazoo, Mich., Indianapolis and La Fayette, Ind., Centralia, Ill., Saint Louis and Sedalia, Mo., Dubuque, Iowa, La Crosse and Embarrass, Wis., Independence, Kans., Boise Barracks, Idaho, Spokane, Wash., and Red Bluff and Los Angeles, Cal., the precipitation for the current month was the greatest ever reported for May. The greatest precipitation for May was noted in western Washington in 1887; in extreme southern Texas in 1885; and in western Oregon and at San Francisco, Cal., in 1879.

YEARS OF LEAST PRECIPITATION FOR MAY.

At Pensacola, Fla., the precipitation for the current month was the least ever noted for May. The least precipitation for May occurred on the north Pacific coast in 1888; from east Texas and Louisiana northwestward to the northern plateau region in 1886; in north and east parts of the Lake region in 1877; and from the lower Mississippi to the lower Missouri valleys in 1874.

EXCESSIVE PRECIPITATION.

The following tables show, by states, the number of stations reporting monthly precipitation to equal or exceed 10.00; precipitation to equal or exceed 2.50 in 24 hours; and precipitation to equal or exceed 1.00 in 1 hour in May, 1892:

Monthly precipitation to equal or exceed 10.00.

State.	Number of stations.	State.	Number of stations.
Missouri	25	Ohio	5
Iowa	20	Oklahoma	5
Arkansas	19	Wisconsin	4
Indiana	12	Nebraska	4
Kansas	7	Kentucky	3
Illinois	6	Michigan	1
Indian Territory	6	New York	1
Texas	6		

Precipitation to equal or exceed 2.50 in 24 hours.

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Missouri	21	2, 2-3, 4, 4-5, 11-12, 12, 12-13, 13, 13-14, 14-15, 29, 30, 30-31, 31.	Indian Territory ..	5	3, 5, 7-8, 8, 14, 16, 17, 31.
Arkansas	15	8-9, 9, 13-14, 14, 17, 18, 30-31, 31.	Oklahoma	5	7, 7-8, 12, 12-13, 13-14, 15-16, 16-17, 30-31.
Texas	15	6, 8, 15, 15-16, 16, 16-17, 30-31, 31.	Tennessee	5	4, 6, 9, 19.
Iowa	12	1, 3, 4, 4-5, 8-9, 16-17, 17, 17-18, 18, 31.	Colorado	4	7-8, 8, 16, 27.
Louisiana	9	8-9, 9, 10.	Kansas	4	4, 7-8, 12-13, 14.
South Dakota	9	1, 16-17, 16-18, 17, 17-18.	Florida	3	31-22, 30.
Minnesota	7	9, 17, 17-18, 18.	Michigan	3	1, 2.
Illinois	6	2, 4-5, 5, 13-14.	Alabama	2	18, 22.
Nebraska	6	1, 8, 8-9, 16-17, 17.	North Dakota	2	17-18.
Indiana	5	6, 18-19, 30, 30-31.	South Carolina	2	10-11, 22.
			California	1	2-3.
			Kentucky	1	18.
			Massachusetts	1	21.
			North Carolina	1	18.
			Pennsylvania	1	26-27.
			Wisconsin	1	17-18.

Precipitation to equal or exceed 1.00 in 1 hour.

Texas	9	5, 8, 15, 15-16, 16, 31.	Nebraska	2	1, 27.
Kansas	6	12, 13, 24, 28, 30.	North Carolina	2	11, 22.
Missouri	5	2, 13, 14, 29.	Oklahoma	2	7.
Arkansas	3	9, 17, 30, 31.	Illinois	1	2.
Colorado	3	27, 30.	Kentucky	1	25.
Florida	3	20, 21, 30.	New York	1	3.
Iowa	3	17, 24, 31.	South Carolina	1	29.
Louisiana	3	9, 18, 31.	Tennessee	1	18.
Alabama	2	29.	Virginia	1	21.
Indian Territory	2	3, 16, 27, 31.	West Virginia	1	18.

Table of excessive precipitation, May, 1892.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Alabama.						
Brewton				2.00	1 00	3
Highland Home				1.44	1 05	2
Mayaville		2.77	18			
Warrior		2.50	22			
Arkansas.						
Arkadelphia	12.95	2.65	31			
Brinkley	10.00					
Conway	10.01					
Dallas	15.80	3.00	31			
Dardanelle		2.60	18			
Fayetteville	12.07	2.85	14			
Fort Smith	10.59	3.68	17	1.85	1 00	1
Hope	12.75	3.55	8-9			
Hot Springs	12.45	3.50	30-31			
Lonoke	10.37			1.00	0 30	
Do				1.12	1 00	3
Newport a	12.27					
Newport b	12.25					
Osceola		3.95	6-9			
Ozark	12.16	2.55	17			
Osone	14.00	2.78	17			
Pine Bluff	12.14	2.99	31			
Prescott	11.01	3.20	9			
Rogers	12.66	3.35	13-14			
Do		2.62	30-31			
Russellville	11.26			1.69	1 30	3
Stuttgart	10.95			1.40	0 45	3
Do		2.64	31			
Winslow	12.83	4.00	17			
California.						
Duarte		3.45	2-3			
Colorado.						
Avoca		3.24	27	3.24	1 45	27
Brandon		3.09	16			
Chivington		2.70	8			
Crook		3.00	7-8			
Robb				1.03	1 00	27
Rocky Ford				1.00	1 00	30
Florida.						
Bristol				1.00	1 00	30
Ocala		3.41	21-22			
Orange City		2.65	30			
Oxford		2.93	21-22	1.80	1 00	21
Titusville				1.26	0 50	20
Illinois.						
Charleston	10.90	4.40	2			
Chester		2.75	13-14			
Hennepin	12.57	3.40	2			
Do		2.53	5			
Kankakee	10.09	3.17	2			
La Grange		2.51	5			
Ottawa	13.25	3.79	2			
Do		3.51	4-5			
Riley	11.05			1.15	1 00	2
Springfield						
Sycamore	11.77					
Warrior		2.70	7			
Indiana.						
Columbia City	11.12					
Delphi	10.16					
Farmland	10.25	2.60	30			
Hawpateh	13.11	3.55	6			
Huntingburgh	11.75					
Huntington	11.48					
Indianapolis		2.73	30-31			
Logansport a	11.05					
Logansport b	10.21					
Marion		2.50	18-19			
Marion	10.65					
Michigan City	10.51					
Point Isabel	11.70	2.70	30-31			
Wabash	10.51					
Indian Territory.						
Enfala	14.42					
Healdton	18.40	2.60				
Do		4.97	7-8			
Do		4.02	14			
Do		2.80	16	2.80	1 30	16
Do		3.40	31	3.40	2 00	31
Purcell	11.95					
Sapulpa	12.50	2.75	17			
Do		2.50	31			
South McAlester	18.48	4.16	3	4.16	2 30	3
Do		3.76	8			
Do		2.80	17	1.13	0 50	27
Tulsa	12.10					
Iowa.						
Alta a	10.39					
Blackton	11.21	2.63	1			
Do		2.73	4			
Cedar Falls	11.00					
Cedar Rapids	10.12					
Centerville	10.57	3.00	4-5	2.76	1 00	31
Do		2.76	31			
Clarinda	11.55	2.50	1			
College Springs		2.70	4			
Corning b	11.63					
Eagle Grove	10.30	2.50	17			
Fairfield	12.01					
Grinnell		2.54	1			
Havlock	15.70	3.50	4-5			

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Iowa—Continued.						
Havelock.....	Inches.	Inches.		Inches	h. m.	
Do.....		3.00	8-9			
Hopeville.....	10.84	4.00	17-18			
Indianola.....	10.47	3.35	4-5			
McCausland.....	10.02					
Maxon.....	11.38	2.84	3			
Do.....		2.87	18			
Mount Pleasant a.....				1.19	1 00	2
Mount Vernon.....	11.65					
Murray.....	11.34					
Muscataine.....	10.32					
Richland.....	10.22	2.69	4-5			
Seymour.....	12.64					
Sioux City.....		3.74	16-17	1.00	0 30	17
Spirit Lake.....		2.57	18			
Winterset.....	10.70					
Kansas.						
Abilene.....				1.13	1 00	12
Altosna.....				1.32	1 00	13
Columbus.....	10.63					
Elk Falls.....				1.30	0 30	30
Greensburgh.....				1.07	1 00	24
Independence.....	10.64	2.53	12-13			
Kellogg.....	12.30					
Leavenworth.....				1.02	0 46	26
Marmaton.....	10.74					
Oswego.....		3.12	7-8			
Sedan.....	10.26					
Shields.....				1.75	0 30	30
Topeka.....	14.10	3.84	4			
Yates Centre.....	11.83	3.39	14			
Kentucky.						
Central City.....				1.00	1 00	25
Frankfort.....	10.05					
Munfordville.....		3.01	18			
Louisiana.						
Abbeville.....		2.70	9			
Franklin.....		3.12	10			
Grand Coteau.....		3.13	8-9			
Houma.....				1.20	1 00	31
Jeanerette.....		3.00	9			
La Fayette.....		3.07	10			
Luling.....				1.30	0 45	18
New Iberia.....		4.30	9			
New Orleans.....				1.13	1 00	9
Opelousas.....		3.70	10			
Paincourtville.....		3.40	9			
Plaquemine.....		3.50	9			
Massachusetts.						
Royalston.....		2.88	21			
Michigan.						
Bronson.....		2.81	2			
Noble.....		2.64	2			
Parkville.....		2.55	1			
Vandalia.....	10.01					
Minnesota.						
Bingham Lake.....		3.40	18			
Bird Island.....		3.99	18			
Fergus Falls.....		4.65	18			
Granite Falls.....		2.60	17-18			
Jackson.....		3.07	17-18			
Kinbrae.....		3.70	17			
Northfield.....		2.80	9			
Missouri.						
Appleton City.....		2.50	13			
Bethany.....	10.30	3.10	4			
Boonville.....	14.88	2.57	11-12			
Carrollton.....	10.03	2.70	29	2.70	1 00	29
Centerville.....		5.10	13-14			
Do.....		5.60	3-4			
Clinton.....	10.42					
Columbia.....	10.58	3.24	12-13			
Conception.....	11.21					
Concordia.....		2.75	12			
Dunnegan.....	11.81					
East Lynne.....		2.67	12-13			
Excelsior Springs.....	10.82			2.00	2 00	12
Fayette.....		3.00	12-13			
Fulton.....	10.95					
Galt.....	12.57					
Harris.....	10.10					
Ironton.....		4.50	14-15			
Jefferson City.....	11.03	3.37	30-31			
Jerome.....	11.14	3.02	30-31			
Lamonte b.....	10.13	2.74	12-13			
Langdon.....	10.81					
Linneus.....	10.55					
Mansfield.....	11.07			1.50	1 00	14
Marshall.....	10.32	2.84	13	2.08	0 30	29
Mine La Motte.....		3.60	13			
Neosho.....	12.72					
New Haven.....	10.60					
Phillipsburgh.....	10.32	2.60	30			
Princeton.....	11.40	3.90	4-5			
Sedalia.....	10.47	2.65	2-3			
Steelville.....		2.50	13-14			
Do.....		2.70	31			
Stellada.....	10.13	2.83	2	2.83	1 50	2
Warrensburg.....	10.00					
Zeitonia.....		2.63	13-14			

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Nebraska.						
Auburn	11.40	Inches.		Inches	A. m.	
Crete	12.13	3.82	1	3.82	3 25	1
Fairbury		2.75	16-17			
Haigler				1.64	1 00	27
Hartington		3.55	17			
Omaha		2.80	16-17			
Plattsmouth	14.72	3.15	8-9			
York		2.63	8			
New York.						
Bolivar	11.02					
South Kortright				1.37	1 20	3
North Carolina.						
Linville		2.93	18			
Littleton				1.50	0 30	21
Oak Ridge				1.41	1 00	11
North Dakota.						
Wahpeton		3.50	17-18			
Wild Rice		2.05	17-18			
Ohio.						
Elyria	10.42					
Leipsic	10.16					
Montpelier	10.23					
Wauseon	11.40					
Oklahoma Territory.						
Anadarko		2.70	7	2.38	1 00	7
Do.		2.90	12-13			
Burnett	12.64	3.73	7-8			
Do.		2.87	13-14			
Guthrie	10.70	2.50	12			
Do.		2.88	15-16			
Sac and Fox Agency	10.87	2.52	7-8			
Do.		3.03	30-31			
Oklahoma City	11.90	3.77	7-8	1.21	1 00	7
Do.		2.71	16-17			
Pennsylvania.						
Pleasant Mount		3.20	26-27			
South Carolina.						
Blackville		3.30	10-11			
Trial		2.67	22	2.05	1 00	29
South Dakota.						
Brookings		3.63	17			
Clark		3.42	17-18			
De Smet		2.95	16-17			
Gary		4.25	17			
Macy		3.07	1			
Millbank		4.47	16-18			
Traverse		2.84	17-18			
Watertown		3.56	17			
Wentworth		3.21	17			
Tennessee.						
Chattanooga				1.03	0 36	18
Columbia		2.80	19			
Dyersburgh		2.60	9			
Hohenwald		2.91	6			
Lynnville		2.80	4			
Memphis		2.69	9			
Texas.						
Arthur City	15.69	2.93	6			
Do.		3.10	15			
Do.		2.99	31			
Camp Eagle Pass		2.60	15-16	2.60	2 30	15-16
College Station		3.46	8			
Corpus Christi				1.00	0 30	16
Corsicana		4.33	15			
Cuero		3.90	16			
Forestburgh	11.77	3.16	31	1.41	0 10	5
Gainesville	14.32	5.61	31			
Graham		3.70	6			
Grape Vine				1.28	1 00	5
Hallettsville		6.54	16	6.54	6 00	16
Mesquite				1.93	0 50	15
Mountain Springs	13.51	3.00	8			
Do.		5.38	31	2.00	0 30	31
Nacogdoches		3.00	8			
Paris	13.55	4.50	30-31			
Red River City	12.12	3.11	16-17			
Round Rock				1.24	1 00	8
Sulphur Springs		2.50	31			
Weatherford		2.75	8	2.75	1 40	8
Virginia.						
Norfolk				1.00	1 00	21
West Virginia.						
Piedmont				1.17	1 00	18
Wisconsin.						
Dodgeville	10.02					
Hillsborough		2.51	17-18			
Janesville	10.70					
Lancaster	10.47					
Mineral Point	11.75					

Received too late for discussion in May, 1892.

Arkansas.						
Mount Nebo	14.20	3.15	17			
Illinois.						
Paris	10.70					
Missouri.						
Rolla	10.75					

Reports received too late, &c.—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Ohio.						
Wheeler	Inches. 10.26	.....	.....	Inches	A. M.	.....
Texas.						
Corsicana a.....	.....	3.26	15	.....	.....	.....

Received too late for publication in April, 1892.

Alabama.						
Warrior		2.70	7			
Missouri.						
Centerville		5.60	3-4			

MAXIMUM RAINFALL IN ONE HOUR OR LESS.

The following table is a record of the heaviest rainfall during May, 1892, for periods of five and ten minutes and one hour, as reported by regular stations of the Weather Bureau furnished with self-registering gauges:

Station.	Maximum fall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
Atlanta, Ga.	Inch.		Inch.		Inch.	
Bismarck, N. Dak.	0.17	16	0.30	16	0.36	16
Boston, Mass.	0.06	4	0.10	4	0.23	4
Buffalo, N. Y.	0.10	3	0.20	3	0.55	3
Cincinnati, Ohio	0.10	17	0.20	17	0.40	17
Chicago, Ill.	0.28	31	0.40	31	0.75	5
Cleveland, Ohio	0.32	1	0.49	1	0.82	1
Denver, Colo.	0.01	30	0.02	30	0.09	30
Detroit, Mich.	0.25	5	0.46	5	0.74	5
Dodge City, Kans.	0.47	30	0.52	30	0.63	30
Duluth, Minn.	0.06	18	0.08	18	0.35	18
Eastport, Me.	0.06	22	0.10	22	0.16	22
Galveston, Tex.	0.04	9	0.07	9	0.13	9
Indianapolis, Ind.	0.55	31	0.65	31	0.92	31
Jacksonville, Fla.	0.20	31	0.31	31	0.38	31
Jupiter, Fla.	0.30	31	0.50	31	0.85	31
Kansas City, Mo.	0.45	5	0.56	5	0.95	5
Key West, Fla.	0.10	3	0.17	3	0.44	3
Marquette, Mich.	0.04	15	0.07	15	0.26	15
Memphis, Tenn.	0.30	9	0.50	9	0.90	9
Milwaukee, Wis.	0.17	31	0.20	31	0.46	31
New York, N. Y.	0.10	11	0.15	11	0.25	11, 19
New Orleans, La.	0.20	9	0.32	9	1.13	9
Norfolk, Va.	0.37	21	0.47	21	1.00	21
Philadelphia, Pa.	0.18	15	0.22	15	0.60	2
Philadelphia Water Works	0.15	15	0.25	15	0.67	2
Pittsburg, Pa.	0.10	6	0.15	5	0.30	6
Portland, Oregon	0.05	10	0.07	10	0.20	10
Saint Louis, Mo.	0.16	28, 31	0.30	31	0.39	31
Saint Paul, Minn.	0.06	16	0.07	16	0.23	16
Salt Lake City, Utah	0.03	16	0.06	16	0.17	16
San Diego, Cal.	0.02	3	0.04	3	0.16	3
San Francisco, Cal.						
Savannah, Ga.	0.25	10, 11	0.35	10, 11	0.79	10, 11
Washington, D. C.	0.24	26	0.30	26	0.51	26
Wilmington, N. C.	0.20	30	0.30	30	0.70	30

* Less than 0.05 in 1 hour.

† Self-register out of order.

The following tables show the number of years for which monthly precipitation to equal or exceed 10.00 inches, daily precipitation to equal or exceed 2.50 inches, and hourly precipitation to equal or exceed 1.00 inch has been reported in the several states and territories for May during the last 22 years:

Excessive monthly precipitation.

State.	No. years noted.	State.	No. years noted.
Texas	14	Alabama	3
Kansas	10	Illinois	3
Iowa	7	Michigan	3
Arkansas	6	Colorado	2
Louisiana	6	The Dakotas	2
Missouri	6	District of Columbia	2
North Carolina	6	Indiana	2
Nebraska	5	Maine	2
Florida	4	Maryland	2
Georgia	4	Massachusetts	2
Mississippi	4	Montana	2
South Carolina	4	New Hampshire	2
Virginia	4	New Jersey	2

Excessive monthly precipitation—Continued.

State.	No. years noted.	State.	No. years noted.
New York	2	Delaware	0
Ohio	2	Idaho	0
Pennsylvania	2	Indian Territory	0
Tennessee	2	Nevada	0
Wisconsin	2	New Mexico	0
California	1	Oregon	0
Kentucky	1	Rhode Island	0
Minnesota	1	Utah	0
Washington	1	Vermont	0
Arizona	0	West Virginia	0
Connecticut	0	Wyoming	0

Excessive daily precipitation (24 hours).

Kansas	12	Massachusetts	4
Texas	10	Ohio	4
Alabama	12	Kentucky	3
Illinois	12	Montana	3
North Carolina	12	Rhode Island	3
South Carolina	12	Wisconsin	3
Florida	11	Connecticut	2
Iowa	10	New Jersey	2
Mississippi	10	New York	2
Indian Territory	9	California	1
Louisiana	9	Delaware	1
Nebraska	9	District of Columbia	1
Arkansas	8	Maine	1
The Dakotas	8	Oregon	1
Georgia	8	Vermont	1
Tennessee	8	Arizona	0
Maryland	7	Idaho	0
Michigan	7	Nevada	0
Indiana	6	New Hampshire	0
Missouri	6	New Mexico	0
Virginia	6	Utah	0
Colorado	5	Washington	0
Minnesota	5	West Virginia	0
Pennsylvania	5	Wyoming	0

Excessive hourly precipitation.

Kansas	16	Massachusetts	2
Texas	12	Michigan	2
Iowa	11	Minnesota	2
Nebraska	9	Missouri	2
Florida	8	Arizona	1
North Carolina	8	Montana	1
South Carolina	8	Oregon	1
Georgia	6	Vermont	1
Maryland	6	California	0
Ohio	6	Connecticut	0
Pennsylvania	6	Delaware	0
Tennessee	6	District of Columbia	0
Illinois	4	Idaho	0
Indiana	4	Maine	0
The Dakotas	4	Nevada	0
Wisconsin	4	New Hampshire	0
Alabama	3	New Jersey	0
Arkansas	3	New Mexico	0
Indian Territory	3	New York	0
Louisiana	3	Rhode Island	0
Mississippi	3	Utah	0
Virginia	3	Washington	0
Colorado	2	West Virginia	0
Kentucky	2	Wyoming	0

The following tables give exceptionally heavy monthly, daily, and hourly precipitation reported for May during the last 22 years:

Monthly.

Station and state.	Am't.	Year.	Station and state.	Am't.	Year.
Melissa, Tex.....	Inches.	1881	Melissa, Tex.....	Inches.	1873
Weatherford, Tex.....	34.83	1884		21.95	

Daily (24 hours).

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
Columbus, Ga.....	Inches.	22, 1880	McConnellsburch, Pa..	Inches.	31, 1889
Fort Wallace, Kans...	9.30	22-23, 1874	Columbia, S. C.....	6.90	20, 1886
Durham, Ark.....	9.30	1, 1876	Hypoluxo, Fla.....	6.89	29-30, 1890
New Frankford, Mo...	9.08	28-29, 1889	Charlesville, Pa.....	6.71	31, 1889
Grampian Hills, Pa...	8.37	31, 1889	Denver, Colo.....	6.70	21-22, 1876
Clarksville, Tex.....	8.25	10-11, 1874	Saint Marys, Ga.....	6.60	27, 1887
Weatherford, Tex.....	8.00	21, 1884	Petersburgh, Pa.....	6.60	31, 1889
Blue Knob, Pa.....	7.90	30-31, 1889	Hallettsville, Tex....	6.54	16, 1892
Okolona, Miss.....	7.50	4, 1887	Boerne, Tex.....	6.52	28, 1880
Shreveport, La.....	7.37	6, 1876	Charleston, S. C.....	6.38	1-2, 1883

Excessive daily precipitation—Continued.

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
Little Rock, Ark.....	Inches.	9-10, 1882	Alum Springs, Va.....	Inches.	30-31, 1889
Tallahassee, Fla.....	6.33	20, 1888	Shreveport, La.....	5.50	21, 1884
Bolar, Va.....	6.25	30-31, 1889	Osage, Iowa.....	5.40	23-24, 1880
Harrisburg, Pa.....	6.16	31, 1889	Coudersport, Pa.....	5.40	31, 1889
Fort Randall, S. Dak...	6.13	15, 1872	Barnegat, N. J.....	5.39	31, 1878
Live Oak, Fla.....	6.06	4-5, 1890	Mountain Spring, Tex.	5.38	31, 1892
Wauseon, Ohio.....	6.04	29-30, 1889	Vicksburg, Miss.....	5.36	23-24, 1872
Weldon, N. C.....	6.03	10, 1887	Frederick, Md.....	5.25	31, 1889
Simpsonville, S. C.....	6.02	25-26, 1890	Galveston, Tex.....	5.24	27-28, 1874
Glenwood, Iowa.....	6.00	29, 1878	Dale Enterprise, Va...	5.24	30-31, 1889
West Almond, N. Y....	6.00	31, 1889	Luling, La.....	5.20	24, 1890
Selins Grove, Pa.....	6.00	31, 1889	Eagles Mere, Pa.....	5.17	31, 1889
Greenville, Ala.....	5.85	30, 1885	Fort Snelling, Minn....	5.12	31, 1877
Emporium, Pa.....	5.85	31, 1889	Anderson, S. C.....	5.12	19, 1886
Tuscarora, Pa.....	5.81	30-31, 1889	Helena, Ark.....	5.12	10, 1882
Mobile, Ala.....	5.62	29, 1882	Hollidaysburgh, Pa....	5.12	31, 1889
Gainesville, Tex.....	5.61	31, 1882	Centerville, Mo.....	5.10	13-14, 1892
Upper Mattole, Cal....	5.59	5-6, 1891	Lumberton, N. C.....	5.07	26-27, 1890
Mayport, Fla.....	5.53	3-4, 1880	Caddo Peak, Tex.....	5.05	1, 1890
Spartanburg, S. C.....	5.53	19, 1886	Ellinwood, Kans.....	5.03	17-18, 1877
Hot Springs, Ark.....	5.52	27-28, 1888	Council Bluffs, Iowa...	5.00	31, 1875
Ellsworth, N. C.....	5.50	22, 1880	Emory Grove, Md.....	5.00	15, 1879
Clarksville, Tex.....	5.50	21, 1878	Fort Niobrara, Nebr...	5.00	25, 1888
Cuero, Tex.....	5.50	29, 1887	Palestine, Tex.....	5.00	2-3, 1884
Houston, Tex.....	5.50	3, 1884	Santee, Nebr.....	5.00	27, 1875
Friendship, N. Y.....	5.50	30-31, 1889	Columbia, La.....	5.00	13, 1890
Smethport, Pa.....	5.50	31, 1889			

One hour and less.

Station and state.	Amount.	Time.	Date.
Indianapolis, Ind.....	Inches.	A. M.	
Jupiter, Fla.....	0.55	0.05	31, 1892
Detroit, Mich.....	0.50	0.05	7, 1891
Dodge City, Kans.....	0.48	0.05	16, 1889
Kansas City, Mo.....	0.47	0.05	30, 1892
Galveston, Tex.....	0.45	0.05	5, 1892
Norfolk, Va.....	0.43	0.05	5, 1890
Jupiter, Fla.....	0.37	0.05	21, 1892
Savannah, Ga.....	0.35	0.05	4, 1890
Do.....	0.35	0.05	27, 1891
Cleveland, Ohio.....	0.35	0.05	3, 1890
New Orleans, La.....	0.32	0.05	1, 1892
Jupiter, Fla.....	0.30	0.05	19, 1890
Kansas City, Mo.....	0.30	0.05	31, 1892
Memphis, Tenn.....	0.30	0.05	31, 1891
San Francisco, Cal.....	0.30	0.05	9, 1892
Chicago, Ill.....	0.30	0.05	5, 1889
Norfolk, Va.....	0.28	0.05	31, 1892
Detroit, Mich.....	0.27	0.05	26, 1891
Saint Louis, Mo.....	0.25	0.05	5, 1892
Washington, D. C.....	0.25	0.05	18, 1890
Forestburg, Tex.....	0.25	0.05	31, 1889
Mount Ida, Ark.....	1.41	0.10	5, 1892
Davenport, Iowa.....	1.20	0.10	10, 1882
Embarrass, Wis.....	0.50	0.10	3, 1888
Oklahoma City, Okla...	2.30	0.15	28, 1881
Coatesville, Pa.....	1.75	0.15	20, 1891
Toledo, Ohio.....	1.24	0.15	11, 1891
La Crosse, Wis.....	1.10	0.15	20, 1880
Charlotte, N. C.....	1.04	0.15	3, 1888
Charleston, S. C.....	1.32	0.16	12, 1891
Cumberland, Md. a.....	1.08	0.17	12, 1883
Mobile, Ala.....	1.69	0.20	25, 1890
Fort Riley, Kans.....	1.64	0.20	5, 1879
West Leavenworth, Kans.	1.50	0.20	14, 1885
Cincinnati, Ohio.....	1.50	0.20	13, 1886
Philadelphia, Pa.....	1.14	0.20	14, 1881
Montgomery, Ala.....	1.00	0.20	20, 1889
Savannah, Ga.....	0.82	0.20	19, 1888
Charlotte, N. C.....	1.60	0.22	26, 1890
Palestine, Tex.....	1.60	0.22	26, 1890
College Hill, Ohio.....	1.17	0.23	24, 1888
Marshall, Mo.....	2.35	0.30	27, 1888
Mountain Spring, Tex....	2.08	0.30	29, 1892
Smithfield, Va.....	2.00	0.30	31, 1889
Shields, Kans.....	1.80	0.30	31, 1892
Cumberland, Md. b.....	1.75	0.30	30, 1892
West Leavenworth, Kans.	1.75	0.35	25, 1890
Fort Riley, Kans.....	2.90	0.45	17, 1884
West Leavenworth, Kans.	2.70	0.45	13, 1885
Do.....	2.70	0.45	11, 1886
Austin, Tex.....	2.40	0.45	12, 1884
Hot Springs, Ark.....	2.50	0.48	7, 1884
McCausland, Iowa.....	3.00	0.50	18, 1891
Rio Grande City, Tex....	3.90	1.00	22, 1890
Bolar, Va.....	3.75	1.00	29, 1885
	3.00	1.00	24, 1890

SNOW (in inches and tenths).

The heaviest snowfall of the month was reported at Central Pacific Railroad stations in the Sierra Nevada Mountains, California, where the greatest depth, 63.0, was noted, at Summit. The monthly amount exceeded 30.0 at Cross, western

South Dak., and at Fort Washakie, Wyo.; it exceeded 20.0 in the mountains of central Colorado, in south-central Montana, and central Nevada; and was more than 10.0 in northern and western Nebraska, southwestern Oregon, and northeastern Utah. The greatest depth noted in New England was 16.0 at Chelsea and Strafford, Vt.; 8.0 fell at Florida, Mass., 6.0 at Walpole, N. H., and 5.0 at Bethel, Me. In the middle Atlantic states trace, only, of snow was reported in the mountains of Pennsylvania. In the Ohio Valley trace fell at Pittsburg, Pa. In the southern, central, and eastern Lake regions no snow was reported, save trace at Detroit, Mich. In Upper Michigan the amount varied from trace to 2.0. In Wisconsin the greatest depth was 5.2 at Shell Lake. 9.7 was measured at Bismarck, N. Dak., and 8.0 at Flagstaff, Ariz.

From the 2d to 4th a heavy snowstorm prevailed over eastern Wyoming and western Nebraska, causing considerable loss of stock on the ranges. At Sundance, Wyo., 14.0 fell, and the storm almost equaled in severity the storm of April 4, 1892. On the 20th and 21st a heavy snowstorm, with high wind, occurred in western Maine, central Vermont, and central New Hampshire. 10.0 fell at Strafford, Vt., and 4.0 at Adams, Mass.

Snowfall was reported as follows:

Arizona.—Flagstaff, 8; Whipple Barracks, trace. **California.**—Summit, 63; Cisco, 55; Emigrant Gap, 35; Truckee, 22; Boca, 12; Sisson, 5; Towles, 3; Julian, 2; Fort Bidwell, 1.9; Colfax and Iowa Hill, 0.5. **Colorado.**—Climax, 25; Georgetown, 21.9; Breckenridge, 21.8; Gold Hill, 17; Rico, 12; Manhattan, 12.5; Jefferson, 8.2; Carson, 8; Dillon, 7.5; Box Elder, 7; Como (near), 6.5; Fort Collins (near) and Stamford, 5; Gaynor, 4.4; Middle Box Elder, 4; Table Rock, 3.5; Red Cliff, 3; San Luis, 2.6; Wallet, 2.5; Alma, 2.2; La Jara, 1.5; Husted, 1; Le Roy, 0.8; Julesburg, 0.7; Crook, Downing, and Robb, trace.

Idaho.—Martin, 14.5; Henrys Lake, 11; Elk City, 1.5. **Illinois.**—Griggsville and Rushville, trace. **Iowa.**—Osage and Storm Lake, 0.3; Algona, 0.1; Alta (a), Ames (b), Charles City, Clarinda, Des Moines, Grand Meadow, Greenfield, Indianola, Larrabee, Oskaloosa, West Bend, and Williams, trace. **Kansas.**—Sharon Springs and Weskau, 1; Oakley, Tribune, and Wallace (b), trace. **Maine.**—Bethel, 5; Cornish, 3.5; Farmington and Lewiston, 2; Calais, Houlton, and Kents Hill, trace. **Massachusetts.**—Florida (b), 8; Monroe, 4; Turners Falls, trace. **Michigan.**—Rockland, 2; Marquette, 0.9; Detroit, trace.

Minnesota.—Farmington and Maple Plain, 4; Pokegama Falls, 3.9; Saint Charles, 3.5; Bird Island, Camden, Crookston, and Minneapolis, 3; Granite Falls, Montevideo, and Saint Oloff, 2; Red Wing, 2; Saint Paul, 1.8; Eagle Bend, 1.5; Lake Winnibigoshish, 1.3; Princeton, 1.2; Fort Ripley, Kinbrae, Leech Lake, Moorhead, Morris, and Sheldon, 1; Alma City, 0.8; Easton, Fergus Falls, and Jackson, 0.5; Fairfield, 0.3. **Missouri.**—Bethany and Darksville, trace. **Montana.**—Cokedale, 20; Dearborn Canyon, 17.5; Choteau, 13; Martinsdale, 9; Miles City, 5.9; Helena, 5; Virginia City, 4; Bozeman, 3.5; Horr, 2.8; Fort Keogh, 0.8; Deer Lodge City, 0.2.

Nebraska.—Kennedy, 22; Valentine, 13.4; Fort Robinson, 10.9; Springview, 6; Kimball, 4; Marquette, trace. **Nevada.**—Tybo, 21; South Camp, 15.7; Austin, 15.2; Belmont, 15; Downeyville, 13; Toano, 11; Ely, 10.5; Fenelon, 8.5; Empire Ranch, 7.8; Palmetto and Stohel, 6; Tuscarora, 5; Lewers Ranch, 3.7; Wells, 3.2; Golconda, Pioche, and Virginia City, 3; Beowawe, 2; Winnemucca and Belleville, 1.5; Genoa, Halleck, and Mill City, 1; Hawthorne (a and b), 0.5; Carson City and Reno State University, 0.2. **New Hampshire.**—Walpole, 6; Hanover (a), 4; Grafton, 3; North Conway and West Milan, 2; Plymouth, 1; East Canterbury, 0.5; Concord and Peterborough, trace. **New Mexico.**—Estalina Springs and Monero, trace. **New York.**—Malone, 0.4.

North Dakota.—Bismarck, 9.7; Milton, 8; Napoleon, 6.5; Grand Forks, 5.5; Grafton, 5; Grand Rapids, 4; White Earth, 3.5; Gallatin, Saint John, and Wild Rice, 2.5; Wah-

peton, 1.5; Fort Buford, 1.1; Churchs Ferry, Hope, and Valley City, 1. **Oregon.**—Siskiyou, 10; Crook, 7; Canyon City, 5.1; Lakeview, 3.5; Fife, 2.5; Silver Lake, 2; Joseph, 1.2; John Day Junction, 1. **Pennsylvania.**—Blue Knob, Dyberry, and Pittsburg, trace. **South Dakota.**—Cross, 38.1; Rapid City, 13.7; Fort Meade, 12.6; Forestburg, 11.3; Spearfish, 8.2; Elkton, 8.1; Watertown, 7; De Smet, 6; Aberdeen, 5; Webster, 3.5; Fort Sully, 3; Mitchell, 2.2; Faulkton, Flandreau, Travere, and Wessington Springs, 2; Rosebud, 1.5; Britton, 1; Parkston, 0.7; Yankton, 0.5; Onida, Tyndall, and Hotch City, trace.

Utah.—Randolph, 12; Grouse Creek, 4.7; Logan, 2.1. **Vermont.**—Chelsea and Strafford, 16; Hartland, 3; Brattleborough, 2; Northfield, 1.5. **Wisconsin.**—Shell Lake, 5.2; Bayfield, 5; Barron and Osceola Mills, 4; Butternut and Hammond, 3; Weston, 2.5; Black River Falls, 2.2; Hudson, Menomonie, Sparta (b), Viroqua, and Whitehall, 2; Hillsborough and Koepenick, 1; Madison and Shawano, trace. **Wyoming.**—Fort Washakie, 35.1; Lander, 26.8; Fort Yellowstone, 18.8; Cheyenne, 15.1; Sundance, 15; Fort McKinney, 8.1; Fort Fetterman, 7; La Barge, 5; Camp Pilot Butte, 3; Laramie (b), 2.5.

HAIL.

Description of the more severe hailstorms of the month is given under "Local storms." Hail was reported as follows: 1st, California, Illinois, Indiana, Iowa, Michigan, Missouri, Nebraska, Ohio, Oregon, and South Dakota. 2d, California, Colorado, Illinois, Indiana, Iowa, Kansas, Missouri, Ohio, Oklahoma, Oregon, Texas, Wisconsin, and Wyoming. 3d, Arkansas, California, Illinois, Indiana, Kansas, Kentucky, Michigan, Missouri, New York, North Dakota, Ohio, and Oregon. 4th, Arkansas, Colorado, Connecticut, Indian Territory, Iowa, Kansas, Kentucky, Missouri, Nebraska, Ohio, Oklahoma, Oregon, Tennessee, and Utah. 5th, California, Iowa, Kansas, Michigan, Missouri, Nebraska, New York, Ohio, Oregon, Utah, and Wisconsin.

6th, California, Colorado, Missouri, Oregon, Pennsylvania, Tennessee, Texas, Wisconsin, and Wyoming. 7th, California, Colorado, Kansas, Oregon, Texas, and Utah. 8th, Indian Territory, Missouri, New Mexico, Oklahoma, Oregon, Texas, and Utah. 9th, Arkansas, California, Florida, Louisiana, and Texas. 10th, Louisiana, Mississippi, Ohio, and Oregon. 11th, California, Colorado, District of Columbia, Georgia, Michigan, North Carolina, Ohio, and Virginia. 12th, Indian Territory, Kansas, Massachusetts, Missouri, Nebraska, Nevada, and Oklahoma. 13th, Indian Territory, Iowa, Kansas, Missouri, Oklahoma, and Utah.

14th, Arkansas, Colorado, Indian Territory, Iowa, Kansas, Maryland, Missouri, Oklahoma, and Washington. 15th, Illinois, Kansas, Maryland, Missouri, Ohio, Oregon, Pennsylvania, Texas, West Virginia, and Wyoming. 16th, Colorado, Indian Territory, Kansas, Missouri, Nebraska, North Carolina, Oklahoma, South Dakota, Texas, and Utah. 17th, Illinois, Iowa, Kentucky, Louisiana, Mississippi, New Mexico, and North Carolina. 18th, Iowa, Missouri, North Carolina, Oregon, Pennsylvania, Tennessee, and Washington. 19th, Arkansas, Iowa, Kentucky, Montana, Ohio, Oregon, South Carolina, West Virginia, Wisconsin, and Wyoming.

20th, Arkansas, Illinois, Indiana, Iowa, Kansas, Missouri, Nebraska, New York, Ohio, Pennsylvania, and South Dakota. 21st, Arkansas, California, Florida, Indiana, Kentucky, New Hampshire, New York, North Carolina, South Carolina, and Virginia. 22d, Alabama, California, Florida, Georgia, Indiana, Kentucky, Michigan, North Carolina, Ohio, Tennessee, and Utah. 23d, California, Maryland, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia. 24th, California, Colorado, Illinois, Kansas, and Utah. 25th, California, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, North Dakota, Ohio, South Dakota, and Wisconsin.

26th, Arizona, Colorado, Illinois, Indiana, Iowa, Michigan, Ohio, Pennsylvania, Tennessee, Texas, Utah, West Virginia,

and Wisconsin. 27th, Arizona, Colorado, Illinois, Indian Territory, Iowa, Kansas, Louisiana, Maryland, Mississippi, Nebraska, New Jersey, New Mexico, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, Virginia, and West Virginia. 28th, Arkansas, Colorado, Illinois, Kansas, Kentucky, Missouri, Nebraska, Ohio, and Tennessee. 29th, Alabama, Arkansas, Georgia, Kansas, Kentucky, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Utah. 30th, Alabama, Arkansas, Colorado, Florida, Georgia, Illinois, Indiana, Kansas, Mississippi, Mis-

souri, New Mexico, Oklahoma, Tennessee, and Texas. 31st, Alabama, Indiana, Indian Territory, Kansas, Kentucky, Michigan, Oklahoma, Tennessee, Texas, and West Virginia.

SLEET.

Sleet was reported as follows: 2d, Nevada and Utah. 3d, Montana and North Dakota. 4th, Arizona and Utah. 6th, Nevada. 7th, Nebraska. 13th, Utah. 15th, New York. 20th, Iowa, Nebraska, and North Dakota. 21st, Arkansas and Iowa. 31st, Texas.

WINDS.

The prevailing winds in May, 1892, are shown on Chart II by arrows flying with the wind. In New England, the Ohio Valley and Tennessee, and over the southern and northern plateau regions south to west winds were most frequently noted; in the middle Atlantic states and on the middle Pacific coast they were generally from southwest to northwest; in the south Atlantic and east Gulf states and the lower lake region, from southeast to southwest; over the Florida Peninsula and in the west Gulf states, from east to south; in the middle and lower Missouri valleys, from northwest to north; on the middle-eastern slope of the Rocky Mountains, from northwest to northeast; on the southeast slope of the Rocky Mountains, from southeast to south; on the north Pacific coast, from west to north; on the south Pacific coast, westerly; in the Red River of the North Valley, northerly; and in the upper lake region, the upper Mississippi valley, and on the middle-eastern slope of the Rocky Mountains, variable.

HIGH WINDS.

[In miles per hour.]

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows: 3d, 60, sw., at Chicago, Ill. 4th, 60, s., at Amarillo, Tex. 6th, 54, e., at Abilene, Tex. 8th, 66, sw., at Abilene, Tex. 10th, 56, s., at Fort Canby, Wash. 15th, 50, sw., at Keeler, Cal. 16th, 66, s., at Fort Canby, Wash. 18th, 56, nw., at Huron, S. Dak.; 50, se., at Sault de Ste. Marie, Mich. 19th, 52, e., at Block Island, R. I.; 51, nw., at North Platte, Nebr. 20th, 58, e., at Block Island, R. I.; 52, nw., at Valentine, Nebr. 24th, 56, n., at Amarillo, Tex. 27th, 54, se., at Huron, S. Dak.; 53, nw., at Kitty Hawk, N. C.; 52, nw., at Norfolk, Va.

LOCAL STORMS.

1st.—High winds prevailed in Kansas, heavy rain fell in Nebraska and South Dakota, and destructive thunder, rain, and hail storms occurred in Iowa, Missouri, Illinois, Indiana, and northern Ohio. Roofs were damaged by high wind at Cunningham, Kans., several buildings were blown down at Burns, Kans., an exceptionally heavy rainstorm was reported at Beatrice, Nebr., and a severe hailstorm visited Sioux Falls, S. Dak. In the middle Mississippi and lower Ohio valleys heavy rain injured crops and washed out railroads. At Withers Mill, Mo., wheat and fruit were damaged by a hailstorm. At Cleveland, Ohio, heavy rain in the afternoon flooded streets and cellars.

2d.—Destructive storms occurred from Texas to Indiana. Exceptionally heavy rain and hail storms were reported in northeastern Texas. Between 7 and 8 p. m. a peculiar formation of clouds was observed near Kingfisher, Okla. The cloud seemed to gyrate for a few minutes and then suddenly lowered a long arm curved somewhat like the letter "S." The forward movement was slow and steady, and the column broke several times only to form again. Previous to the formation of this tornado, an ordinary thunderstorm approached from the south, attended by heavy hail. The tornado moved northeast in a path about 100 feet in width and changed direction to southwest several times. Buildings in its path were scattered in all directions, trees were twisted off, balls of fire were observed,

and one person was killed. A tornado moving northeast passed near Orlando, Okla., at 2.30 p. m., in a path 80 to 100 feet in width, with rain, heavy hail, thunder, and lightning. Articles were thrown west from the center, several persons were injured, and the damage by wind and hail was placed at \$4,000. Another whirl which did not reach the earth hovered in the air about 15 minutes.

About 7 p. m. a storm passed over the northwestern part of Chautauqua county, Kans., destroying a number of buildings, killing one person, and injuring several. At Topeka, Kans., a heavy thunderstorm from the southwest began in the late afternoon. From 5.03 to 7.10 p. m. 2.12 inches of rain fell. Bottoms in the south part of the city were flooded. Much damage to property and some loss of life were reported near Topeka. At 7.30 p. m. a severe thunderstorm from the southwest visited Kansas City, Mo. Destructive storms were reported at various points in western Missouri. At Davenport, Iowa, a thunderstorm began 10.20 p. m. and continued until the early morning of the 3d. The heavy rains caused great damage to railroad property and interrupted traffic about Davenport. Thunder and hail storms occurred in central and northern Illinois. Near Rantoul, Ill., a barn was struck by lightning and 5 horses were killed. Lightning killed one person and injured another near Lincoln, Ill. Heavy rain fell in central and northern Indiana, and severe storms were reported in West Virginia.

3d.—Local storms occurred from Arkansas and Missouri over the Ohio Valley, and in Pennsylvania and New York. A heavy hailstorm was reported at Fayetteville, Ark., in the afternoon. Very heavy rain fell from eastern Kansas to Illinois. At Chicago, Ill., the wind reached a velocity of 60 miles per hour from the southwest. Three persons were reported killed by lightning near Hardinton, Ind. At Springfield, Ohio, 2 persons were killed and several were injured by lightning. At Ithaca, N. Y., a heavy thunderstorm from the west, with high westerly winds and rain, prevailed from 6 to 6.38 p. m. A barn was struck by lightning and burned, and lightning struck several barns east of Ithaca. Considerable damage was caused by lightning at other points in western New York. Heavy rain, with thunder and lightning, occurred throughout the Allegheny and Monongahela valleys, Pennsylvania, in the early afternoon, causing considerable damage to property. Heavy thunder and wind storms were reported in central and north-central Pennsylvania.

4th.—Heavy rain fell from eastern Kansas over Missouri, Iowa, and Illinois, and local storms were reported in the Ohio Valley and Tennessee, and in Massachusetts. At Topeka, Kans., the rainfall was very heavy, 2.00 inches fell from 10 a. m. to noon, and many houses in the south part of the city were washed from their foundations. A large number of washouts were reported and a number of bridges were carried away near Leavenworth, Kans. In Concordia, Kans., a stone house was struck by lightning and badly damaged. Rivers and streams in northern Missouri, Iowa, and Illinois were flooded by heavy rain, inundating low-lying districts, and causing great damage to property in towns and country. Marietta, Ohio, was visited by a destructive wind, rain, and thunder storm in the after-

noon. A heavy rain and hail storm washed out fields about Lynnville, Tenn. A house near Bedford, Mass., was struck by lightning.

5th.—Eastern Iowa and western Illinois were visited by exceptionally heavy rainstorms, attended in places by severe local storms. About Davenport, Iowa, streams overflowed, flooding lowlands and causing washouts on railroads. During a thunderstorm in the evening at Dubuque, Iowa, a house was struck by lightning and one person was killed. A heavy thunderstorm, with hail, moved southeast over Braidwood, Ill., in the early morning, causing damage to the extent of about \$3,000. A destructive storm was reported in the north part of Wabash county, Ind., in the evening. Destructive rain and local storms were reported in southern Indiana and central Kentucky.

6th.—Severe local storms occurred in the District of Columbia, Maryland, Pennsylvania, West Virginia, and Texas. At Washington, D. C., a thunderstorm began 4.10 p. m., and the wind reached a velocity of 42 miles per hour. The temperature fell from 88° to 72°. Destructive wind, rain, and hail storms were reported in central and northern Maryland and in southeastern Pennsylvania. At 3.15 p. m. a storm moved southeast by east over Gettysburg, Pa., unroofing two buildings. During a thunderstorm at Elkhorn, W. Va., the wind reached a velocity of 80 miles per hour, prostrating trees, etc. At Abilene, Tex., heavy rain, with thunder and lightning, occurred at intervals during the day. In the evening the wind reached a velocity of 54 miles per hour from the east. A hailstorm caused considerable damage in the morning 14 miles southeast of Abilene. Destructive rain and local storms were reported throughout central Texas.

8th.—Destructive storms occurred from Texas to Missouri. At Abilene, Tex., an exceptionally severe thunder, wind, and rain storm prevailed from midnight to 10 a. m. The wind reached a velocity of 66 miles per hour from the southwest at 1.45 a. m., the temperature fell from 83° to 54° between 2 a. m. and 8 a. m., and streams were running bank full as the result of the heavy rain. At 6 p. m. a destructive storm passed about one mile west of Morrilton, Ark., destroying property to the estimated value of \$10,000 to \$12,000.

9th.—Local storms were reported in Arkansas, southern Missouri, and western Tennessee. A destructive storm from the northwest passed over the southern part of Lee county, Ark., about noon. Seven persons were injured, several barns and outhouses were blown down, and many trees were torn up by the roots. About 5 a. m. a storm caused minor damage at Cassville, Mo. At Jackson, and near Collierville, Tenn., considerable damage was caused by thunder and wind storms.

10th.—Heavy wind, rain, and hail storms occurred in eastern Ohio. Buildings were damaged, trees were uprooted, and exceptionally heavy rainfall flooded low-lying sections. In Mercer county, Ohio, a number of buildings were struck by lightning and burned.

11th.—Heavy thunder and hail storms visited the District of Columbia and west-central Maryland. At Washington, D. C., a thunderstorm from the west began at 2 p. m., with heavy hail in the northern part of the city. At College Park, Md., heavy, threatening clouds appeared in the west and moved south of east. At 2 p. m. a strong gust of wind, with large drops of rain, was quickly followed by high winds and heavy rain. At 2.05 p. m. hail began and continued 9 minutes. The hail was followed by copious rain and wind diminishing in force. Glass in north and west sides of buildings was badly broken. None of the hailstones were less than one-half inch, and many were one and one-half inch in diameter. Most of the stones were nearly perfect spheres, clear and very hard; some were white and opaque. In many cases the form was a double convex lens, the lesser diameter being at least one-half the greater. In the larger stones the structure by concentric rings or spheres was plainly seen. This band of hail was about 5 miles in width. The storm was also severe at other points in western Maryland.

12th.—Tornadoes were reported in the afternoon in Oklahoma Territory. A report from Gate City, Okla., states that the afternoon had been very warm, with fresh west wind. Heavy cumulo-stratus clouds appeared in the southwest. In the south a cloud with sharply-defined lower border had formed, from which rain was falling, the under side of the mass being a deep blue-black. At 5.35 p. m. a column of the same color as the cloud mass extended to the horizon at an angle of about 45° to the plane of the cloud. A revolving motion and a serpentine vibration were observable. The gyrations rapidly increased in velocity, and at 5.39 p. m. the lower part of the column suddenly disappeared, and the remaining portion was quickly drawn up to the cloud mass. The earlier part of this storm consisted of a cloudburst, with a heavy fall of hail, on the divide between the Beaver and Kiowa rivers. The tornado first made its appearance nearly south of Gate City, where it dug up sand hills and destroyed a small clump of timber.

About 20 miles south of Mangum, Okla., 5 persons were killed, and about 20 buildings were destroyed by a tornado. A severe thunderstorm from the northwest passed over Oklahoma City between 9.30 and 11 p. m. During the height of the storm a violent whirl of small dimensions formed in the south part of the city, overturning barns and outhouses. The path of the whirlwind was about 15 feet in width. A heavy thunderstorm, with high wind and excessive rain, visited Excelsior Springs, Mo., between 9.30 and 11.30 p. m. Streams overflowed, carrying away small buildings and bridges and damaging crops on lowlands. A severe thunder and hail storm was reported at Sedalia, Mo., at night.

13th.—Local storms occurred from Kansas and Texas to southern Illinois. A tornado visited Eureka, Kans., about 5.30 p. m. The clouds had been black for several hours, and rain had fallen nearly all day. The funnel-shaped cloud was distinct in form and color, and upon first touching the ground tore up trees and hedges. It then veered to a northeast course and destroyed a barn; a dwelling close to the barn was uninjured. Several large trees were twisted from the ground. A house, with its contents, was next scattered far and near, and the ground for one-fourth mile along the storm's track was littered with debris. Fruit trees were carried off. The water was sucked out of a well. A new, strong wagon was carried one-fourth mile. Another house was smashed flat, all of the materials remaining on the site. The edges of the path of destruction were clean cut.

At Climax, Kans., a funnel-shaped cloud moved east about 6.50 p. m. The path of destruction was about 150 feet in width, and the property destroyed was valued at about \$1,500. A tornado visited the south part of Augusta, Kans., about 5 p. m., demolishing 15 buildings and injuring several persons. A tornado was reported near Mulvane, Kans. At 6.55 p. m. a whirling storm was distinctly seen about 2 miles east of Wichita, Kans. At Centerville, Mo., a thunderstorm ended 6 a. m. A second thunderstorm began 4.30 p. m. and continued during the night. The heavy rainfall flooded the Black River, causing damage on lowlands. A thunderstorm occurred at Springfield, Mo., in the morning. Heavy rainstorms caused considerable damage in northwestern Arkansas and in parts of Oklahoma Territory. A severe thunderstorm prevailed at Nashville, Tenn., from 10.50 a. m. to 1.30 p. m. Lightning struck in 3 places, and telephone connections were burned out. A heavy thunderstorm prevailed at Cairo, Ill., from 6.40 to 11.48 p. m. The storm advanced from the southwest, and for 2 minutes the wind reached a velocity of 60 miles per hour.

14th.—Local storms were reported from Texas to Missouri, and in Ohio and Pennsylvania. A destructive storm was reported near Aaron, Okla. Several persons were killed or injured, and a number of buildings were destroyed. Severe thunderstorms occurred in northern Texas and Oklahoma and Indian territories. Stock was reported killed by lightning near Lehigh, Ind. T., during a thunder and hail storm. A wind and hail storm of short duration caused damage about Cawker City, Kans., in the morning. At Clinton, Mo., a

thunder and hail storm damaged fruit and gardens. Northern Ohio was visited by an unusually heavy rainstorm. A heavy rain and thunder storm passed over York, Pa., at night.

15th.—Destructive storms occurred in Ohio, West Virginia, and Pennsylvania. Local storms were also reported in Texas. A violent wind and rain storm was reported in Scioto county, Ohio. During a thunderstorm at Cincinnati, Ohio, trees were blown down on Walnut Hills. A thunderstorm was traced from Brown and Butler counties, in southwestern Ohio, northeastward over Mahoning county, the average rate of advance being 20 miles per hour. In its advance the storm is reported to have assumed a "horseshoe" shape, after which it contracted and lost energy. The damage noted, which was of a minor character, occurred in the southern half of the storm. A heavy thunder and rain storm occurred about noon at Wheeling, W. Va. At Corry, Pa., a windstorm caused damage in a path about 30 feet in width. The damage was confined to tops of buildings and trees, 12 to 16 feet above the ground. A violent wind and rain storm was reported about Harrisburg, Pa. A storm moved northeast over the southern part of Delta county, Tex., at night, causing destruction in a path about 300 yards in width. Destructive thunderstorms also visited Richardson and Ennis, Tex.

16th.—Local storms were reported from South Dakota to Texas, and in Iowa and Missouri. About Huron, S. Dak., heavy rain flooded cellars and caused a suspension of farm work. At 1.50 p. m. a thunder and hail storm moved north near Allison, Kans. At 2.31 p. m. a tornado cloud appeared west of Allison. The cloud extended to the earth and moved northward, with heavy rain and hail. Lightning struck a schoolhouse 5 miles southwest of Gove City, Kans. The severest thunderstorm experienced in several years occurred at Concordia, Kans., in the evening. Streets and cellars were flooded, bridges were washed away, and washouts occurred on railroads. The river rose rapidly and flooded lowlands. Lightning struck and damaged a house. At Oklahoma City a thunderstorm began 9 p. m. and continued during the night. Heavy rain flooded the lower part of the city. Exceptionally heavy rain was reported at Hartington, Nebr. At Mount Carmel, Iowa, a church was struck by lightning and burned. A rain and hail storm passed over Clinton, Mo., at 3 p. m., causing great damage to glass, fruit, etc. A destructive hailstorm was reported at Thomaston, Ga.

17th.—Local storms occurred in Iowa, Missouri, Illinois, Kentucky, Ohio, Minnesota, and North Carolina. At Sioux City, Iowa, damage was caused by heavy rain. One person was reported killed by lightning at Wapello, Iowa. A storm caused damage of a minor character at Mansfield, Mo. One person was killed by lightning at Stillwell, Ill. A violent thunder and wind storm visited Louisville, Ky., at 2 p. m., causing damage to roofs, trees, etc. Some damage was caused by lightning in Cincinnati, Ohio. A man was killed by lightning near Morris, Minn. Two horses were killed, and one person was stunned by lightning near Kinston, N. C.

18th.—Heavy windstorms prevailed over South Dakota, Kansas, Iowa, and Missouri, and local storms were reported in Wisconsin, Lower Michigan, Ohio, and Pennsylvania. At Pierre, S. Dak., the pontoon bridge across the west channel of the Missouri River was blown from its moorings. At Huron, S. Dak., the wind reached a velocity of 56 miles per hour from the northwest. At Leavenworth, Kans., an extreme velocity of 52 miles per hour was reached at 5.40 p. m. A severe northwest wind prevailed at Lebo, Kans., in the morning. The edges of leaves on the tops and northwest sides of apple trees, and tender garden vegetables, were blackened as though scorched by fire. At Alta, Iowa, light buildings were blown down, and heavy rain flooded cellars and caused washouts on railroads. A severe storm visited the region about Chattanooga, Tenn., in the afternoon. Electric wires were rendered useless by wind and lightning, trees were blown down, and houses on Lookout Mountain were unroofed. Heavy northwest winds caused damage about Mansfield,

Springfield, and Platte River, Mo. Streams and fields were flooded by heavy rain at Harvey, Wis. Lightning struck a building and stunned several persons at Detroit, Mich. A destructive storm was reported near Miamitown, Ohio, in the afternoon. A heavy thunderstorm was reported at Wilkes Barre, Pa.

19th.—Snow fell at night in the mountains of northwestern Massachusetts. Two buildings were struck by lightning in the evening at Dallastown Pa. A heavy windstorm prevailed from 2 to 4 p. m. at Olney, Ill. High north winds, with heavy rain changing at intervals to snow, prevailed at Duluth, Minn. The damage by wind to buildings was estimated at \$3,000. Snow and heavy rain fell in northern Wisconsin.

20th.—Snow fell in New Hampshire, Vermont, western Massachusetts, western Connecticut, and northeastern New York. High wind, with snow and sleet, continued during the early morning and the day at Grafton, N. Dak. At Yates Center, Kans., a house was struck by lightning.

21st.—Severe local storms occurred in Virginia and North Carolina. Three men were killed and 2 were injured by lightning near Everetts, Va. A heavy hailstorm visited the region about Norfolk and Portsmouth, Va. A hailstorm was reported in the northern part of Halifax county, N. C. A thunderstorm caused damage in the east part of Wilson, N. C. Severe thunder and wind storms were noted in other parts of eastern North Carolina.

22d.—A destructive hailstorm was reported at Branchville, S. C., in the early morning.

23d.—A violent hailstorm visited Charleston, W. Va., in the afternoon, causing great damage to foliage, fruit, etc. A severe thunder and hail storm occurred 15 miles east of Fort Jones, Cal.

24th.—Destructive thunder and hail storms were reported in Williamsburgh county, S. C., and in Bertie county, N. C.

25th.—Thunderstorms occurred in western Pennsylvania, Ohio, southern Michigan, Indiana, Kansas, and Florida. At Greensburgh, Pa., an electric light plant was struck by lightning, and one person was seriously injured. A cloudburst at Kinsman, Ohio, in the afternoon, flooded streams and washed away a dam. Six persons were reported drowned, and great damage was caused to property. A destructive hailstorm visited Jackson county, Ind. A thunderstorm, with heavy rain, high wind, and hail, occurred at Detroit, Mich., in the afternoon; one man was fatally injured by lightning. In the early morning buildings were struck by lightning at Fort Scott, Tex. A thunderstorm, with rain in a small area, visited Jupiter, Fla., at night.

26th.—Thunderstorms occurred in New Jersey, Maryland, District of Columbia, Pennsylvania, Ohio, Indiana, Tennessee, and Texas. At Bordentown, N. J., a church was struck by lightning. A house was struck by lightning at Annapolis, Md. At Washington, D. C., a thunderstorm, with hail, moving from the west began at 3.51 p. m. and continued at intervals until 4.30 p. m. Considerable damage was caused to foliage and growing crops by hail. The temperature fell from 81° to 57°. Damage was caused by hail and a house was struck by lightning at Perkasié, Pa. A house was struck by lightning at Gallipolis, Ohio, at night, and a destructive hailstorm was reported at Canton, Ohio, in the afternoon. A severe thunder, rain, and hail storm visited Brownsville, Ind., at night; two persons were reported killed by lightning, and crops were damaged by hail. A heavy wind and hail storm passed over Lynnville, Tenn; two houses were moved from their foundations, and trees were blown down. Destructive storms were reported in central Texas. A windstorm leveled trees, etc., at Soapstone Mount, N. C.

27th.—Thunderstorms occurred in New York, Pennsylvania, North Carolina, Ohio, Arkansas, South Dakota, and Texas, and destructive tornadoes were reported in Kansas. In Pittsfield, N. Y., a house was struck by lightning. A house was struck by lightning at Albany, N. Y. A heavy thunder

and hail storm visited the region about York, Pa., in the afternoon. During a thunderstorm in the afternoon damage was caused by wind at Weldon, N. C. Near Bement, Ohio, gardens were damaged by a hailstorm. A severe storm visited the region about Clark, S. Dak. Four buildings were struck and some stock was killed by lightning, and a house was blown down, injuring two persons. Large tracts of timber northwest of Texarkana, Tex., were leveled by a storm at night. A thunder and hail storm occurred about Abilene, Tex., in the morning; the temperature fell from 89° to 56°.

Destructive tornadoes occurred in the evening in south-central Kansas. The storm apparently moved eastward, traversing the distance between Attica and Kellogg, Kans., about 65 miles, in 3 hours, giving an average rate of advance of about 22 miles per hour. Two funnel-shaped clouds were observed 1 mile north of Medicine Lodge, Kans., and two formed 2½ miles northwest of that place. The first two traveled in an easterly direction, and the others are reported as having moved westerly. The storm was attended by hail and was very destructive north of Medicine Lodge. At Attica, Kans., a thunder and hail storm moved east at 6.30 p. m. At Harper all houses were reported destroyed or damaged; no fatalities in Harper, but 3 persons reported killed near that place. At Argonia a heavy wind, rain, hail, and thunder storm moved south of east at 8 p. m.

At Wellington a tornado occurred at 9.30 p. m. The storm moved north of east in a path about 200 yards in width, its arrival being preceded by heavy rain. Its passage was attended by a continuous roar of thunder and an incessant blaze of lightning. The greatest destruction was observed in the southern part of the path, and articles were thrown from south to north; 12 persons were killed, and the destruction to property was estimated at \$200,000. Two clouds were observed, one traveling from the northwest and one from the southwest. After the union a dark mass of cloud hung down and traveled with great velocity, attended by a roaring sound. When the cloud touched the ground it appeared like a mass of fire. A dead calm preceded the breaking of the storm over Wellington; the air apparently became rarefied, and breathing was difficult; the color of the lightning flashes changed from white to an intense blue; a roar was next heard, which grew louder as the storm approached. The storm struck timber 2 miles south of Kellogg, which is about 20 miles east of Wellington, and caused damage to orchards, buildings, etc., in that section. On the north side of the track the debris was thrown west, and on the south side it was thrown east. Hailstorms were reported near Dodge City, Kans., in the afternoon.

28th.—Thunderstorms occurred in New Jersey, Florida, Illinois, Missouri, and Wisconsin. During a heavy thunderstorm in the evening 2 houses in New Brunswick, N. J., were struck by lightning. Destructive thunderstorms, attended in instances by hail and violent winds, occurred in various parts of Florida. A tornado moving northeast was reported south of Olney, Ill., at 4.03 p. m. The storm had a whirling motion and the path of destruction varied from 50 to 200 yards in width. Trees in the center were broken off and appeared scorched by fire; those on the edges of the path were thrown toward the center. The damage to buildings was estimated at \$4,500, and to orchards \$2,000. Near Decatur,

Ill., a man was killed by lightning. A destructive storm moving northeast was reported near Fulton, Mo. Destructive local storms occurred at Warrenton and Marshall, Mo. At Columbia, Mo., 0.76 inch of rain fell in 10 minutes, commencing 4.40 p. m., and high wind damaged outbuildings, etc. At Lancaster, Wis., 2 persons were stunned by lightning. Destructive wind and hail storms were reported in east-central Texas.

29th.—Heavy hailstorms occurred in western Florida, southern Alabama, Tennessee, Kentucky, Missouri, and Oklahoma, and destructive local storms were reported in Kansas. At Flomaton, Ala., hail damaged vegetation. A wind and hail storm caused damage to cotton and corn about Jackson, Tenn. Buildings were twisted and trees were uprooted at Earlinton, Ky., by a windstorm which was attended by heavy rain and hail. Destructive thunder and hail storms occurred at Carrollton, Mo., and Buffalo, Okla. At Columbus, Kans., a barn was struck and some stock was killed by lightning. Hail damaged wheat near Arkalon, Kans. Severe storms were reported in extreme south-central Kansas.

30th.—Local storms occurred in Virginia, South Carolina, Tennessee, Illinois, Missouri, Kansas, and Oklahoma. At Norfolk, Va., a man was killed by lightning. Several trees were struck by lightning at Charleston, S. C. A cloudburst occurred at Lynnville, Tenn., and a large area was flooded. A heavy thunderstorm occurred at night at Olney, Ill. A destructive storm visited McLeansborough, Ill.; the storm advanced from the southwest; one house and two barns were destroyed. A heavy thunderstorm visited Platte River, Conception, and Springfield, Mo. A thunderstorm, with heavy hail and excessive rain, occurred at Dodge City, Kans., in the afternoon. 0.47 inch of rain fell in 5 minutes. A tornado destructive to life and property was reported near Independence, Kans., in the evening. A destructive hailstorm occurred at Shields, Kans. A heavy thunder and hail storm occurred at night at Gate City, Okla.

31st.—Severe storms occurred in Michigan, Ohio, Indiana, Mississippi, Arkansas, Louisiana, and Texas. A thunderstorm, with high westerly winds, occurred in the afternoon at Detroit, Mich. Damage by wind, hail, and lightning was reported in various parts of the state. Lightning struck in several places in Toledo, Ohio. Heavy rain caused washouts on railroads in Indiana. In the early morning houses in Fort Smith, Ark., were unroofed by wind. Severe windstorms were reported at Liberty Hill and Coushatta, La. Destructive local storms occurred in east-central and north-central Texas. At San Angelo, a tornado moved southeast in a path 400 to 500 yards in width at 5.30 p. m., with hail and some thunder and lightning. One person was fatally injured. Débris in the path was thrown southeast. On the southwest side of the path buildings were turned and faced southwest. At Belcherville a heavy rain, thunder, and hail storm moved southeast at 4.20 p. m. Damage was confined to the south side of the storm's path; 40 to 50 buildings were destroyed, and several persons were injured. Very heavy rain fell at Forestburgh, Tex. A heavy thunderstorm from the northwest visited Palestine at night. Hail was reported southwest of that place. Near Durango a tornado moved northeast in a path about 400 yards in width at 6.30 p. m., with heavy rain, thunder, and vivid lightning. Six persons were reported killed.

INLAND NAVIGATION.

FLOODS.

The month opened with rivers above the danger-line at Paducah, Ky., Cairo, Ill., Memphis, Tenn., Vicksburg, Miss., and New Orleans, La. Heavy rains had flooded streams in eastern Kansas, northwestern Missouri, Iowa, Illinois, and Indiana. The crevasse at La Blanches on the Lafourche Bayou was reported as widening; a large body of water was escap-

ing through the break, and many plantations were being submerged. On the 2d the Ohio River fell below the danger-line at Paducah, Ky. The Mississippi River was rising slowly at Memphis and Vicksburg. During the 5th and 6th the Kansas River rose rapidly, flooding parts of the suburbs of Kansas City. On the 6th the Mississippi River rose above the danger-line at Keokuk, Iowa. On the 7th the Mississippi River was

rising rapidly at Hannibal, Mo. At New Orleans the river was rising slowly and stood at 16.5 feet. The Ohio River fell below the danger-line at Cairo, Ill. Bottom lands along the Des Moines River were under water, and great damage was caused by flooding streams in Illinois and Indiana.

On the 8th heavy rain flooded streams in eastern Kansas and western Missouri. Great devastation by flood was reported along the Illinois River. Flooding streams caused great damage about Lincoln, Nebr. The flood in the Des Moines River was slowly subsiding. The Maumee River was very high at Toledo, Ohio. On the 9th the Republican River overflowed its banks, causing considerable damage in low lands about Concordia, Kans. The Missouri River was rising at Kansas City. Streams continued to rise in northern Missouri, and flood conditions continued along the Illinois River. The Des Moines and Raccoon rivers were overflowing low lands in the region about Des Moines, Iowa. The Mississippi River fell slightly from Hannibal, Mo., northward. The river was rising at Saint Louis, and reached the danger-line at Louisiana, Mo. The levee on the Arkansas side of the Mississippi River in Kentucky Bend, 26 miles south of Greenville, Miss., broke, the crevasse being 350 feet in width; efforts to stop the break were futile.

On the 11th the Missouri River was rising steadily at Kansas City, Mo., and was 1.1 foot below the danger-line. In the evening the river reached 29.6 feet at Saint Louis, Mo., the highest stage since 1883. On the 12th the Mississippi River fell below the danger-line at Keokuk, Iowa, in the early morning. The river continued to rise at Saint Louis, reaching 30.6 feet. The Missouri River passed the danger-line at Kansas City at 11 p. m. On the 13th a break was reported in the levee at Panther Forest, below Arkansas City, Ark. The Mississippi River fell below the danger-line at Memphis, Tenn.

The Arkansas River was rising rapidly at Fort Smith, Ark. At Little Rock the river reached a stage of 22 feet, 1 foot below the danger-line. At Kansas City, Mo., the river had risen 1.3 foot in 24 hours, and considerable damage was caused by flood in the suburbs Armourdale and Argentine.

On the 14th the Mississippi was rising at Saint Louis, and the water passed the danger-line, 32 feet, between midnight and 6 a. m., inundating the river front and north and south parts of the city. At Kansas City, Mo., the river reached 22.6 feet in the morning, flooding Harlem. The Electric Light and Smelting Works in Argentine suspended operations, being surrounded by water. About 100 houses in Armourdale, and 150 houses in Argentine were vacated. The Arkansas and Red rivers were rising rapidly. On the 15th the river reached 34.4 feet at Saint Louis. Railroad traffic was badly crippled, nearly all tracks entering the city being submerged, and a part of the American Bottom, in Illinois, was inundated, owing to a break in the Madison levee. The Missouri river reached 23.2 feet at Kansas City, causing great damage to property. At Leavenworth, Kans., the river was reported stationary. The Arkansas River reached 27 feet at Fort Smith, Ark., in the morning, a rise of 10.2 feet in 24 hours, and by 8 p. m. had reached 29 feet. At Little Rock the river began to rise at noon, and reached 22.5 feet by 8 p. m.

On the 16th the Mississippi River continued to rise at Saint Louis. At Davenport, Iowa, it was stationary. About 2 a. m. a break occurred in the levee at or near Bonnet Carre, on the east bank of the Mississippi 25 miles north of New Orleans. The crevasse was reported 150 feet in width. Plantations in the vicinity of the break were submerged, and trains on the Mississippi Valley Railroad were delayed. The Missouri River was falling slowly at Leavenworth, Kans. The Arkansas River reached 30.2 feet at Fort Smith, Ark., causing great damage to crops by flooding of bottom lands. About 4,500 acres of cultivated land about Fort Smith were submerged. At Little Rock the river rose to 25 feet, 2 feet above the danger line, flooding large areas above and below the city. The Ohio River was above the danger-line at Cairo, Ill. The lower part of

Beardstown, Ill., and many farms in that section were flooded by the Illinois River.

On the 17th the break at Bonnet Carre, La., had widened to 250 feet and was 12 feet deep. At Saint Louis, Mo., the stage of water was 35.3 feet, a rise of 5 feet in 5 days. At Cairo, Ill., the stage was 41.8 feet, a rise of 5.3 feet in 7 days. Destructive floods were reported along the Red River in Texas and Louisiana. The Arkansas River continued to rise, reaching 26 feet at Little Rock at 6 p. m. The Missouri River was falling slowly at Kansas City.

Excessive rain caused a disastrous flood in the Floyd Valley, Iowa, on the 18th. Rains had saturated the ground and streams were running bank full. Heavy rain began the evening of the 16th and continued at intervals until the night of the 17th. The flood extended as far as Alton, 40 miles above Sioux City. At Le Mars the water was highest at 3 a. m., 18th, when it flooded the entire valley to a depth of 4 to 6 feet. The breaking of the dam at that place is reported to have had no effect upon the flood, as, at the time it broke, the water was as high below as above the dam. The Floyd Valley has an average width of three-fourths mile. At its usual stage the river is about 50 feet in width, with 5 to 6 feet of water in the channel. The water reached Lynn and Leeds, suburbs about 4 miles above Sioux City, at 6.30 a. m., 18th, and came in a wave 4 feet in height. The places named have a population of about 2,500, about one-third of which number lost all of their household effects by flooding of houses. The water reached Sioux City 7 a. m., and at 9 a. m. was 3 to 10 feet deep on the flats. It continued to rise until 12.30 p. m., when it began to subside. The flood resulted in the loss of at least 20 lives. 1,000 families were rendered homeless; 3,000 persons were reported destitute; 167 buildings were swept away; and 700 were rendered untenable. The aggregate damage to property was placed at \$1,000,000. This flood was thought to be no higher than those of 1876 and 1881, but more damage was caused, owing to the greater number of buildings exposed.

The Mississippi River continued to rise at Saint Louis. A large number of plantations about the Bonnet Carre crevasse were reported under water. The Missouri River was rising at Kansas City, flooding bottoms and suburbs. The Arkansas River rose to 27 feet at Little Rock at 6 p. m., flooding plantations above and below that place. The Des Moines and Raccoon rivers flooded low lands along their banks. On the 19th the Mississippi River reached 36 feet at Saint Louis. 60,000 acres of bottom land in Illinois opposite Saint Louis were submerged and crops ruined. The Ohio and Mississippi Railroad was the only road running trains east, the sweeping away of the Madison levee having inundated all others. The Missouri River rose 1.5 foot at Kansas City and a great deal of property about that place was under water. The Arkansas River reached 30.9 feet at Fort Smith, the highest point ever noted at that place, the highest previous stage being 29.9 in 1844. 10,000 acres of cultivated land were submerged in that section, causing a loss estimated at \$200,000. The Red River rose rapidly at Shreveport, La. Smaller streams in Illinois were high and flooding their banks.

On the 20th the Mississippi River was falling slowly at Saint Louis. The Missouri River continued to rise at Leavenworth, Kans., reaching a point one-tenth foot below the danger-line. The Arkansas River fell slowly at Fort Smith. At Little Rock the river reached its highest stage, 27.9 feet, the highest stage noted at that place since 1844. The Red River reached 29.3 feet at Shreveport, La. Levees at Carolina Bluff, 25 miles above Shreveport, and on the opposite side of the river in Caddo parish were reported broken and much valuable land flooded. At Des Moines, Iowa, the rivers were higher than at any time since 1851, and great damage was caused in the bottoms. On the 21st the Mississippi River was falling at Saint Louis. The Missouri River was rising and nearly 4 feet above the danger-line at Kansas City. All low lands were under water, and Harlem and parts of Armourdale and Argentine

were nearly depopulated. In the evening the river was falling slowly at Kansas City. At Little Rock the Arkansas River began to fall slowly, reaching 27.6 feet at 5 p. m. At Shreveport the Red River rose 1.3 foot in 24 hours. The Des Moines River flooded the lower part of Ottumwa, Iowa. At Des Moines the river was falling slowly.

On the 22d a serious break in the levee occurred in Saint Johns parish, 46 miles north of New Orleans on the east bank of the Mississippi River, and water covered the tracks of the Mississippi Valley Railroad for a distance of one mile. The Red River rose 1.4 foot at Shreveport, and breaks in the levees occurred at Navigation and Youngs Points and at Nicholas Place, submerging many fine plantations. The Missouri River was falling at Kansas City. Floods were reported along the Hudson River and in interior streams of New York. On the 23d the Mississippi River reached 17.1 feet at New Orleans, La., equaling the highest stage on record. Two crevasses were reported in the Red River below Shreveport, La., causing the overflow of bottom lands in the vicinity of Loggy Bayou. On the 24th the Mississippi River rose above the danger-line at Memphis, Tenn. The river was stationary at 48.2 feet at Vicksburg, and maintained a stage at 17.1 feet at New Orleans. The Arkansas River fell below the danger-line at Fort Smith, Ark. The levee on the Herdon Place in Caddo parish on the Red River broke.

On the 25th the Willamette River rose rapidly at Portland, Oregon, covering the lower docks. On the 26th the Missouri River fell below the danger-line at Kansas City, Mo. Breaks were reported in the levees of the Red River as follows: a large break in Thompsons levee at Wild Lucia; 6 breaks at Woods Place 40 to 200 feet in width; 1 break at Hati 250 feet in width; a break at Kansas 40 feet in width; and 2 breaks at Soda Fount 200 to 300 feet in width. Nearly all lands in Bossier parish were reported under water, except from Benton to Shreveport. Low lands on the Saint Francis and White rivers in Arkansas were flooded. On the 27th a large break occurred in the Red River levee at Gold Point. On the 28th the Mississippi River fell to the danger-line at Keokuk, Iowa. A crevasse occurred at the Story Plantation, 9 miles below New Orleans on the east bank of the river. The Red River reached 35.6 feet at Shreveport. At Little Rock the Arkansas River fell below the danger-line.

On the 29th the Mississippi River was below the danger-line at Keokuk, Iowa. The Red River was falling at Shreveport, La. On the 30th the Red River fell 0.4 foot at Shreveport. Ninety per cent. of the cultivated land about Gaines Landing, Chicot county, Ark., was reported overflowed. At the close of the month the Mississippi River had risen above the danger-line at Dubuque, Iowa, flooding houses in low-lying parts of the city. At Saint Louis the stage was 31.9 feet, 1.9 foot above the danger-line, and the river was falling slowly. At Memphis the river was rising and 1.2 foot above the danger-line. At Vicksburg the river was about stationary at 48.3 feet, 1.3 foot above the danger-line. At New Orleans, La., there was a 17-foot stage, and the river was rising slowly. At New Orleans the levees were holding good. Bottom lands were submerged along the Black River in Missouri. The Willamette River was over the lower docks at Portland, Oregon.

OPENING OF NAVIGATION.

The Erie Canal was opened for navigation at Rochester, N. Y., on the 1st.

Heavy floating ice was reported at Sault de Ste. Marie, Mich., on the 1st.

The first up river steamer of the season arrived at Pierre, S. Dak., on the 5th.

On the 8th the harbor at Duluth, Minn., was filled with ice, making navigation difficult.

The Straits of Macinac were open on the 6th. On the 10th a steamer passed through bound for Buffalo, N. Y.

The first arrival of the season was noted at Cheboygan, Mich., on the 12th.

Records kept at the port of Cheboygan, Mich., show that the opening of the straits for navigation this season was the earliest since 1855.

STAGE OF WATER IN RIVERS.

In the following table are shown the danger-points at the various river stations; the highest and lowest stages for the month, with the dates of occurrence, and the monthly ranges:

Heights of rivers above low-water mark, May, 1892 (in feet and tenths).

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Date.	Height.	Date.	Height.	
<i>Red River.</i>						
Shreveport, La.	29.9	28	35.7	3	18.9	16.8
<i>Arkansas River.</i>						
Fort Smith, Ark.	22.0	19	31.0	5	6.1	24.9
Little Rock, Ark.	23.0	20	27.9	7	9.4	18.5
<i>Missouri River.</i>						
Fort Buford, N. Dak.		31	11.7	4	6.1	5.6
Bismarck, N. Dak.		31	6.1	6-9, 23-25	2.8	3.3
Pierre, S. Dak.	14.0	13	3.0	31	1.4	1.6
Sioux City, Iowa.	18.7	19	11.2	4.5	7.8	3.4
Omaha, Nebr.	18.0	23	13.1	4.5	8.4	4.7
Kansas City, Mo.	21.0	21	24.9	2	12.4	12.5
<i>Mississippi River.</i>						
Saint Paul, Minn.	14.0	26	12.6	1	4.1	8.5
La Crosse, Wis.	11.8	27, 29	11.6	1	3.8	7.8
Dubuque, Iowa.	16.0	31	16.2	1	5.8	10.4
Davenport, Iowa.	15.0	31	11.8	1	4.5	7.3
Keokuk, Iowa.	14.0	7	15.6	1	6.0	9.6
Hannibal, Mo.	17.0	9	18.5	1	7.8	10.7
Saint Louis, Mo.	30.0	19	36.0	4	20.2	15.8
Cairo, Ill.	40.0	1	47.4	10	36.5	10.9
Memphis, Tenn.	33.0	2, 4	34.6	16	31.2	3.4
Vicksburg, Miss.	41.0	10, 11, 14-16, 18.	48.4	1	47.4	1.0
New Orleans, La.	13.0	23, 24	17.1	1, 2	16.1	1.0
<i>Ohio River.</i>						
Parkersburg, W. Va.	38.0	19	19.0	3	7.0	12.0
Cincinnati, Ohio.	45.0	21, 22	32.2	6	17.2	15.0
Louisville, Ky.	24.0	21	12.4	7	8.6	3.8
<i>Cumberland River.</i>						
Nashville, Tenn.	40.0	1	22.7	18	6.8	15.9
<i>Tennessee River.</i>						
Chattanooga, Tenn.	33.0	1	8.7	18	4.8	3.9
<i>Monongahela River.</i>						
Pittsburg, Pa.	29.0	5, 29	12.2	2	3.6	8.6
<i>Savannah River.</i>						
Augusta, Ga.	32.0	13	9.8	30, 31	7.0	2.8
<i>Willamette River.</i>						
Portland, Oregon.	15.0	31	17.7	8	5.4	12.3
<i>Susquehanna River.</i>						
Harrisburg, Pa.	17.0	23, 24	8.8	2, 3, 4	2.8	6.0
<i>Alabama River.</i>						
Montgomery, Ala.	48.0	2	6.9	29, 30	3.8	3.1

ATMOSPHERIC ELECTRICITY.

THUNDERSTORMS.

Description of the more severe thunderstorms reported for the month is given under "Local storms."

Thunderstorms were reported as follows: East of the Rocky Mountains they were reported in the greatest number of states, 32, on the 26th and 27th; in 27 on the 15th; in 26 on the 18th; in 20 to 25 on the 2d, 4th, 6th, 9th, 10th, 14th, 16th, 17th, 25th, and 28th to 31st; in 15 to 19 on the 1st, 3d, 5th, 7th, 8th, 11th, 12th, 13th, 19th, 20th, 21st, and 24th; and

in 10 to 14 on the 22d and 23d. There was no date for which thunderstorms were not reported in less than 10 states east of the Rocky Mountains.

East of the Rocky Mountains thunderstorms were reported on the greatest number of dates, 29, in Illinois; on 28 in Kansas and Missouri; on 26 in Texas; on 20 to 25 in Arkansas, Florida, Indiana, Iowa, Kentucky, Nebraska, North Carolina, Ohio, Oklahoma, South Dakota, and Tennessee; on 15 to 19 in Alabama, Georgia, Louisiana, Maryland, Michigan, Mississippi,

Pennsylvania, and West Virginia; on 10 to 14 in Indian Territory, Massachusetts, New Jersey, New York, South Carolina, and Wisconsin; and on 5 to 9 in Connecticut, District of Columbia, Maine, Minnesota, North Dakota, and Vermont. The only states in which thunderstorms were reported on less than 5 dates were Montana, New Hampshire, and Rhode Island, where they were reported on 2 dates.

West of the Rocky Mountains thunderstorms were reported in Arizona on the 3d, 21st, 23d to 28th, and 30th; in California on the 1st, 2d, 3d, 6th, 12th, and 21st to 25th; in Colorado on the 2d, 4th, 6th, 7th, 8th, 10th to 14th, 16th, and 23d to 30th; in Idaho on the 23d; in Nevada on the 3d, 4th, 9th, 10th, 11th, 13th, 15th, 16th, and 21st to 29th; in New Mexico on the 3d, 4th, 17th, 18th, 19th, and 23d to 31st; in Oregon on the 2d, 6th, 7th, 8th, 10th, 15th, 23d, 24th, 25th, and 29th; in Utah on the 10th, 11th, 16th, 22d to 27th, 29th, and 30th; in Washington on the 6th; and in Wyoming on the 1st, 8th, 10th, 12th, 23d, 24th, 27th, and 29th.

AUROSAS.

The most important auroral displays of the month were noted from New England to Montana and southward to Missouri and Oklahoma Territory the night of 18-19th. In New England the display was very brilliant, and at its height covered nearly the entire sky, with a well-defined corona near the zenith.

Auroral displays of May, 1892.

Date.	Station.	Extent of display.		Remarks.
		Asimuth.	Altitude.	
1	New Whatcom, Wash....	.....	30	Arch, with luminous beams.
2	Tatoosh Island, Wash..	In the n.	.....	Seven streamers of a pale yellow color.
7	Alpena, Mich.....	.....	30	Arch, and beams of white light.
7	Marquette, Mich.....	135 to 195	25	Arch, with irregular rays of light.
8	Milwaukee, Wis.....	In the n.	15	A light arch.
16	Sault de Ste. Marie, Mich.	135 to 225	25	Electric blue color, with beams of light.
18	Manchester, N. H.....	105 to 245	60	Bright yellow light, with streamers to zenith.
18	Burlington, Vt.....	.....	Zenith	Streamers.
18-19	Boston, Mass.....	110 to 260	90	Corona formed 5° south of zenith.
18-19	Woods Holl, Mass.....	100 to 260	20	Waves of light to altitude 85°.
18	Cambridge, Mass.....	Covered larger part of the sky.		Waves of pale green light met 5° south of the zenith, from which point streamers radiated in all directions, those south of zenith stopping in altitude about 75°. Center unsteady, changing position rapidly. Display observed from 8.45 p. m. At 10.15 p. m. arch of 20° altitude in the north, with shifting lights.
18	New Haven, Conn.....	90 to 270	Zenith	Streamers and "merry dancers" of white and pale yellow.
18	New London, Conn.....	135 to 225	70	Pale yellow light, with streamers.
18-19	Buffalo, N. Y.....	110 to 205	40	Waves of light and "merry dancers."
18-19	Oswego, N. Y.....	.....	*	Double arch 1 a. m. 19th.
18	Columbia, Mo.....	In the n.	45	Arch, with streamers.
18-19	Bismarck, N. Dak.....	190 to 270	Zenith	Irregular beams of light.
18	Greenfield, Iowa.....	In nne.	.....	Streamers.
18	Yankton, S. Dak.....	140 to 220	40	Arch, with faint rose-colored beams.
18	Helena, Mont.....	In the n.	Zenith	Light resembled the dawn of day.
18	Gate City, Okla.....	175 to 195	40	Numerous streamers of white light.
19	Rapid City, S. Dak.....	90 to 270	†	An arch of white light.
22	Marquette, Mich.....	135 to 270	15	Diffused light.

* 10° to 20° south of zenith.

† Beyond zenith.

MISCELLANEOUS PHENOMENA.

DROUGHT.

A report from Saint Thomas, W. I., dated the 14th, stated that the long drought was broken, and that unusually heavy rain had fallen at that place and over the Windward Islands. In Florida the drought continued until the 28th, when thunderstorms, with heavy precipitation, occurred generally over the state. The remainder of the month there was a fair distribution of showers, except in localities in the western part of the

state. The abundant rainfall was attended by a marked improvement in the condition of crops. Reports for the early part of the month from Charleston, S. C., and Augusta, Ga., indicate that rain was badly needed in those sections. The drought in southeastern Texas was broken on the 16th. A report from Fort Stanton, N. Mex., dated the 25th, stated that the protracted drought was injuring crops in the mountain districts.

STATE WEATHER SERVICES.

[Temperature in degrees Fahrenheit; precipitation, including melted snow, in inches and hundredths.]

The following extracts and summaries are republished from reports for May, 1892, of the directors of the various state weather services:

ALABAMA.

Temperature.—The mean was 2.1 below the normal; maximum, 100, at Geneva, 25th; minimum, 36, at Healing Springs, 22d; greatest monthly range, 57, at Healing Springs; least monthly range, 34, at Chepultepec and Jemison.

Precipitation.—The average was 0.57 below the normal; greatest monthly, 8.94 at Pushmataha; least monthly, 0.86, at Newton.

Wind.—Prevailing direction, south.—*P. H. Mell, Observer, Weather Bureau, Auburn, director.*

ARIZONA.

Temperature.—The mean was about 4.0 below the normal; maximum, 115, at Fort Mohave, 19th; minimum, 13, at Whipple Barracks, 6th; greatest monthly range, 76, at Whipple Barracks; least monthly range, 32, at Dos Cabezas.

Precipitation.—The average was about 0.05 below the normal; greatest monthly, 7.55, at Flagstaff; least monthly, 0.00, at Bisbee, Chiricahua Mountains, Fort Bowie, Navajo Springs, Teviston, and Walnut Ranch.

Wind.—Prevailing direction, southwest.—*J. C. Hayden, Observer, Weather Bureau, Tucson, director.*

ARKANSAS.

The month was remarkable for the great amount of rainfall.

Temperature.—The mean was 1.3 below the normal; maximum, 95, at Keesses Ferry, 4th; minimum, 36, at El Dorado, 22d; greatest monthly range, 58, at Hope; least monthly range, 28, at Madding.

Precipitation.—The average was 5.55 above the normal; greatest monthly, 15.80, at Dallas; least monthly, 2.93, at Greenville, Miss.

Wind.—Prevailing direction, south.—*M. F. Locke, Commissioner of Agriculture, Little Rock, director; F. H. Clarke, Observer, Weather Bureau, assistant.*

CALIFORNIA.

Temperature.—The mean was 2.6 below the normal; maximum, 107, at Bakersfield, 21st; minimum, 29, at Fort Jones, 8th; greatest monthly range, 69, at San Ardo; least monthly range, 47, at Oakland and Yuba City.

Precipitation.—The average was 1.67 above the normal; greatest monthly, 7.58, at Georgetown; least monthly, 0.28, at Bakersfield.

Wind.—Prevailing direction, west.—*J. A. Barwick, Observer, Weather Bureau, Sacramento, director.*

COLORADO.

The continued cold weather was unfavorable to crops.

Temperature.—The mean was 4.0 below the normal; maximum, 96, at Crook, 22d; minimum, 11, at Breckenridge, 6th; greatest monthly range, 66, at Crook and Downing; least monthly range, 45, at Moraine.

Precipitation.—The average was normal; greatest monthly, 9.73, at Chivington; least monthly, 0.03, at San Acacia.

Wind.—Prevailing direction, west.—*W. S. Miller, Observer, Weather Bureau, Denver, director.*

FLORIDA.

Temperature.—Maximum, 98, at Bristol, 28th; minimum, 48, at Archer, 23d and 24th; greatest monthly range, 49, at Archer; least monthly range, 18, at Key West.

Precipitation.—Greatest monthly, 4.62, at Ocala; least monthly, 0.19, at Pensacola.

Wind.—Prevailing direction, southeast.—*E. R. Demain, Observer, Weather Bureau, Jacksonville, director.*

GEORGIA.

Temperature.—The mean was 0.7 below the normal; maximum, 100, at Cordele, 30th and 31st; minimum, 36, at Diamond, 24th; greatest monthly range, 58, at Cordele; least monthly range, 35, at Lumpkin.

Precipitation.—The average was 1.25 below the normal; greatest monthly, 4.91, at Hephzibah; least monthly, 0.43, at Fleming.

Wind.—Prevailing directions, west and southwest.—*Park Morrill, Local Forecast Official, Weather Bureau, Atlanta, director.*

ILLINOIS.

Temperature.—The mean was 3.5 below the normal of the last 17 years; maximum, 90, at McLeansborough, 30th; minimum, 30, at East Peoria, 23d.

Precipitation.—The average was 3.97 above the normal; greatest monthly, 13.25, at Ottawa; least monthly, 5.20, at Olney.

Wind.—Prevailing direction, southeast.—*John Craig, Observer, Weather Bureau, Springfield, director.*

INDIANA.

Temperature.—The mean was 1.1 below the normal; maximum, 89, at Vevay, 31st; minimum, 30, at Hammond, 13th; greatest monthly range, 51, at Mount Vernon and Maury.

Precipitation.—The average was 3.55 above the normal; greatest monthly, 13.11, at Hawpatch; least monthly, 4.29, at Jeffersonville.

Wind.—Prevailing direction, southwest.—*Prof. H. A. Huston, La Fayette, director; C. F. R. Wappenhans, Local Forecast Official, Weather Bureau, assistant.*

IOWA WEATHER AND CROP SERVICE.

Temperature.—The mean was about 5.0 below the normal; maximum, 88, at Glenwood, 24th; minimum, 29, at College Springs, 10th; greatest monthly range, 54, at Centerville; least monthly range, 34, at Vinton.

Precipitation.—The average was 4.50 above the normal; greatest monthly, 12.64, at Seymour; least monthly, 4.87, at Osage.

Wind.—Prevailing direction, northwest.—*J. R. Sage, Des Moines, director; G. M. Chappel, Local Forecast Official, Weather Bureau, assistant.*

KANSAS.

Temperature.—The mean was 5.5 below the normal; maximum, 98, at Sharon Springs, 28th; minimum, 27, at Lakin, 6th and 10th; greatest monthly range, 68, at Sharon Springs; least monthly range, 41, at Lawrence.

Precipitation.—The average was 3.77 above the normal; greatest monthly, 14.10, at Topeka; least monthly, 2.30, at Morton.

Wind.—Prevailing direction, northwest.—*Prof. J. T. Lovewell, Topeka, director; T. B. Jennings, Observer, Weather Bureau, assistant.*

KENTUCKY.

Temperature.—The mean was about 2.0 below the normal; maximum, 90, at Bowling Green and Shelbyville, 31st, and at Louisa, 5th; minimum, 36, at Central City, 23d; greatest monthly range, 52, at Central City; least monthly range, 34, at Wickliffe.

Precipitation.—The average was about 2.00 above the normal; greatest monthly, 8.95, at Shelbyville; least monthly, 3.59, at Richmond.

Wind.—Prevailing direction, southwest.—*Frank Burke, Observer, Weather Bureau, Louisville, director.*

LOUISIANA.

Temperature.—The mean was 0.9 below the normal; maximum, 96, at Coushatta, 30th, and at Schriever, 15th, 30th, and 31st; minimum, 36, at Winnsborough, 23d; greatest monthly range, 58, at Winnsborough; least monthly range, 18, at Port Eads.

Precipitation.—The average was 2.45 below the normal; greatest monthly, 7.18, at Homer; least monthly, 0.66, at Girard.

Wind.—Prevailing direction, southeast.—*George E. Hunt, Local Forecast Official, Weather Bureau, New Orleans, director.*

MARYLAND.

Temperature.—Maximum, 90, at Seaford, Del., 4th; minimum, 35, at Boettcherville, 9th; greatest monthly range, 51, at Boettcherville; least monthly range, 28, at Jewell.

Precipitation.—Greatest monthly, 6.35, at Boettcherville; least monthly, 0.16, at Frederick.

Wind.—Prevailing direction, southwest.—*Dr. William B. Clark, Johns Hopkins University, Baltimore, director; Prof. Milton Whitney, Maryland Agricultural College, secretary and treasurer; C. P. Cronk, Observer, Weather Bureau, in charge.*

MICHIGAN.

Temperature.—The mean was 0.3 below the normal; maximum, 86, at Birch Run and Adrian, 31st; minimum, 23, at Weldon Creek, 2d; greatest monthly range, 56, at Weldon Creek and Fitchburgh; least monthly range, 27, at McMillan.

Precipitation.—The average was 2.28 above the normal; greatest monthly, 10.01, at Vandalia; least monthly, 1.00, at McMillan.

Wind.—Prevailing direction, southwest.—*E. A. Evans, Local Forecast Official, Weather Bureau, Detroit, director.*

MINNESOTA.

Temperature.—Maximum, 79, at Saint Vincent, 16th; minimum, 22, at Eagle Bend, 8th; greatest monthly range, 54, at Saint Vincent; least monthly range, 34, at Sheldon.

Precipitation.—Greatest monthly, 9.91, at Northfield; least monthly, 2.22, at Saint Vincent.

Wind.—Prevailing direction, northwest.—*J. H. Harmon, Observer, Weather Bureau, Minneapolis, director.*

MISSISSIPPI.

Temperature.—The mean was 0.5 below the normal; maximum, 98, at Columbus, 16th; minimum, 40, at Aberdeen, 21st and 24th, at Brookhaven, 21st, and at Columbus, Louisville, and Okolona, 22d; greatest monthly range, 58, at Columbus; least monthly range, 35, at Ship Island.

Precipitation.—The average was 0.93 below the normal; greatest monthly, 8.42, at Meridian; least monthly, 0.49, at Vicksburg.

Wind.—Prevailing direction, south.—*R. B. Fulton, Observer, Weather Bureau, University, director.*

MISSOURI.

The continued cool and wet weather was generally unfavorable to agricultural interests.

Temperature.—The mean was 3.6 below the normal; maximum, 91, at Mexico, 24th; minimum, 28, at Adrian, 20th and 21st.

Precipitation.—The average was 4.88 above the normal; greatest monthly, 18.48, at South McAlester, Ind. T.; least monthly, 5.10, at Oak Ridge.

Wind.—Prevailing direction, southwest.—*Levi Chubbuck, Secretary of State Board of Agriculture, Columbia, director; H. A. McNally, Observer, Weather Bureau, assistant.*

MONTANA.

The month was the coldest on record, and vegetation and crops were retarded.

Temperature.—Maximum, 101, at Glendive, 2d; minimum, 13, at Fort Logan, 3d; greatest monthly range, 77, at Glendive; least monthly range, 48, at Virginia City.

Precipitation.—Greatest monthly, 2.69, at Dearborn Canyon; least monthly, 0.29, at Great Falls.

Wind.—Prevailing direction, east.—*E. J. Glass, Observer, Weather Bureau, Helena, director.*

NEBRASKA.

Temperature.—Maximum, 98, at Ansley, 22d, and at Mullan, 23d; minimum, 27, at Fort Robinson, 8th, and at Whitman, 20th; greatest monthly range, 69, at Ansley; least monthly range, 38, at West Mill and Hays Centre.

Precipitation.—Greatest monthly, 12.13, at Crete; least monthly, 2.82, at Kimball.

Wind.—Prevailing direction, northwest.—*Prof. Goodwin D. Swezey, Crete, director; G. A. Loveland, Observer, Weather Bureau, assistant.*

NEVADA.

Temperature.—The mean was 0.8 below the normal; maximum, 100, at Belleville, 18th; minimum, 13, at Ely, 14th; greatest monthly range, 71, at Tuscarora; least monthly range, 44, at Palmetto.

Precipitation.—The average was 0.04 below the normal; greatest monthly, 4.04, at Stofiel; least monthly, 0.00, at Elko.

Wind.—Prevailing direction, west.—*Prof. Charles W. Friend, Carson City, director; F. A. Carpenter, Observer, Weather Bureau, assistant.*

NEW ENGLAND.

Temperature.—The mean was 1.4 below the normal; maximum, 89, at Mansfield, Mass., 31st; minimum, 17, at Farmington, 5th; greatest monthly range, 65, at Stratford; least monthly range, 26, at Nantucket.

Precipitation.—The average was 1.75 above the normal; greatest monthly, 7.35, at Chicopee; least monthly, 2.02, at Calais.

Wind.—Prevailing direction, southwest.—*J. Warren Smith, Observer, Weather Bureau, Boston, Mass., director.*

NEW MEXICO.

Temperature.—Maximum, 96, at Socorro, 19th; minimum, 15, at Halls Peak, 6th; greatest monthly range, 72, at Coolidge; least monthly range, 39, at La Luz.

Precipitation.—Greatest monthly, 1.35, at Albert; least monthly, 0.00, at a number of stations in the south-central part.

Wind.—Prevailing direction, west.—*H. B. Hersey, Observer, Weather Bureau, Santa Fe, director.*

NEW YORK.

Temperature.—The mean was 1.9 below the normal; maximum, 91, at Lockport and Rochester, 31st; minimum, 26, at Humphrey, 8th; greatest monthly range, 68, at Humphrey; least monthly range, 36, at Setauket.

Precipitation.—The average was 2.01 above the normal; greatest monthly, 11.02, at Bolivar; least monthly, 3.16, at Watkins.

Wind.—Prevailing direction, southwest.—*Prof. E. A. Fuertes, Dean of the College of Civil Engineering, Cornell University, Ithaca, director; R. M. Hardinge, Observer, Weather Bureau, assistant.*

NORTH CAROLINA.

Temperature.—The mean was 0.5 below the normal; maximum, 97, at Douglas, 6th; minimum, 32, at Bakersville, 24th; greatest monthly range, 63, at Douglas; least monthly range, 28, at Hatteras.

Precipitation.—The average was 0.58 below the normal; greatest monthly, 6.80, at Linville; least monthly, 1.64, at Wilmington.

Wind.—Prevailing direction, southwest.—*Dr. Herbert B. Battle, Raleigh, director; C. F. von Herrmann, Observer, Weather Bureau, assistant.*

NORTH DAKOTA.

Temperature.—The mean was 7.1 below the normal; maximum, 95, at Medora, 22d; minimum, 13, at White Earth, 2d; greatest monthly range, 75, at Medora and White Earth; least monthly range, 48, at Saint John and Moorhead, Minn.

Precipitation.—The average was 0.40 below the normal; greatest monthly, 5.36, at Wahpeton; least monthly, 0.35, at Bottineau.

Wind.—Prevailing direction, northwest.—*W. H. Fallon, Observer, Weather Bureau, Bismarck, director.*

OHIO.

Temperature.—The mean was 1.0 below the normal; maximum, 99, at Portsmouth, 31st; minimum, 28, at Carrollton, Lordstown, and Weymouth, 8th; greatest monthly range, 62, at Weymouth; least monthly range, 37, at Elyria.

Precipitation.—The average was 2.09 above the normal; greatest monthly, 11.40, at Wauseon; least monthly, 3.15, at Pomeroy.

Wind.—Prevailing direction, southwest.—*Prof. B. F. Thomas, Columbus, director; C. M. Strong, Observer, Weather Bureau, secretary and assistant.*

OKLAHOMA.

Temperature.—Maximum, 98, at Mangum, 1st; minimum, 32, at Keokuk Falls, 23d; greatest monthly range, 59, at Fort Sill and Keokuk Falls; least monthly range, 38, at Healdton.

Precipitation.—Greatest monthly, 18.40, at Healdton; least monthly, 4.48, at Fort Supply.

Wind.—Prevailing direction, south.—*Louis Dorman, Observer, Weather Bureau, Oklahoma City, director.*

OREGON.

Temperature.—The mean was 0.8 below the normal; maximum, 96, at Grants Pass, 20th; minimum, 18, at Silver Lake, 1st; greatest monthly range, 72, at Crook; least monthly range, 29, at Bandon.

Precipitation.—The average was 0.26 above the normal; greatest monthly, 7.64, at Langlois; least monthly, 0.67, at The Dalles.

Wind.—Prevailing directions, west and southwest.—*Hon. H. E. Hayes, Master State Grange, Portland, director; B. S. Pague, Observer, Weather Bureau, assistant.*

PENNSYLVANIA.

Temperature.—The mean was 1.5 below the normal; maximum, 91, at Johnstown, 31st; minimum, 28, at Wellsborough, 10th; greatest monthly range, 61, at Smethport; least monthly range, 40, at Philadelphia.

Precipitation.—The average was 2.25 above the normal; greatest monthly, 9.39, at Kane; least monthly, 3.95, at Harrisburg.

Wind.—Prevailing direction, west.—*Under direction of the Franklin Institute, Philadelphia; H. L. Ball, Observer, Weather Bureau, assistant.*

SOUTH CAROLINA.

Temperature.—Maximum, 94, at Cheraw, Florence, and Kingstree, 6th; minimum, 39, at Greenville, 24th.

Precipitation.—Greatest monthly, 8.67, at Trial; least monthly, 2.07, at Green Pond.—*A. P. Butler, Observer, Weather Bureau, Columbia, director.*

SOUTH DAKOTA.

Temperature.—The mean was 7.6 below the normal; maximum, 92, at Midland, 24th; minimum, 15, at Macy, 5th and 6th; greatest monthly range, 66, at Oelrichs; least monthly range, 41, at Rapid City.

Precipitation.—The average was 1.53 above the normal; greatest monthly, 8.84, at Watertown; least monthly, 2.58, at Whitewood.

Wind.—Prevailing direction, northwest.—*S. W. Glenn, Local Forecast Official, Weather Bureau, Huron, director.*

TENNESSEE.

Temperature.—The mean was 0.9 above the normal; maximum, 92, at Springdale, 17th; minimum, 37, at Hohenwald, 23d; greatest monthly range, 53, at Hohenwald; least monthly range, 35, at McMinnville.

Precipitation.—The average was 1.10 above the normal; greatest monthly, 8.64, at Lynnville; least monthly, 2.81, at Knoxville.

Wind.—Prevailing direction, south.—*J. B. Marbury, Observer, Weather Bureau, Nashville, director.*

TEXAS.

Temperature.—The mean was 0.4 below the normal; maximum, 109, at Fort Ringgold, 29th and 30th; minimum, 32, at Fort Hancock; greatest range, 66, at Fort Hancock; least monthly range, 28, at Corpus Christi.

Precipitation.—The average was 1.75 below the normal; greatest monthly, 14.32, at Gainesville; least monthly, 0.00, at Camp Pena Colorado and Fort Hancock.

Wind.—Prevailing direction, southeast.—*D. D. Bryan, Galveston, director; I. M. Cline, Local Forecast Official, Weather Bureau, assistant.*

UTAH.

The cold weather retarded crops.

Temperature.—Maximum, 98, at Saint George, 19th and 23d; minimum, 19, at Soldiers Summit, 8th; greatest monthly range, 73, at Manti; least monthly range, 45, at Lake Park and Soldiers Summit.

Precipitation.—Greatest monthly, 3.00, at Logan; least monthly, 0.20, at Saint George.—*G. N. Salisbury, Observer, Weather Bureau, Salt Lake City, director.*

VIRGINIA.

Temperature.—Maximum, 95, at Richmond, 4th; minimum, 33, at Dale Enterprise, 9th; greatest monthly range, 56, at Dale Enterprise; least monthly range, 40, at Birdanest.

Precipitation.—Greatest monthly, 5.10, at Big Stone Gap; least monthly, 1.62, at Charlottesville.

Wind.—Prevailing direction, southwest.—*Dr. E. A. Craighill, Lynchburg, director; J. N. Ryker, Observer, Weather Bureau, assistant.*

WASHINGTON.

Temperature.—The mean was 1.2 below the normal; maximum, 96, at Chehalis, 20th; minimum, 27, at Waterville, 6th; greatest monthly range, 64, at Chehalis; least monthly range, 27, at Tatoosh Island.

Precipitation.—The average was 0.48 above the normal; greatest monthly, 7.64, at Neah Bay; least monthly, 0.24, at Vashon.

Wind.—Prevailing direction, west.—*E. B. Olney, Observer, Weather Bureau, Olympia, director.*

WEST VIRGINIA.

Temperature.—Maximum, 96, at Spencer, 31st; minimum, 32, at Ella, 8th; greatest monthly range, 59, at Ritchie C. H.; least monthly range, 42, at Pleasant Hill.

Precipitation.—Greatest monthly, 7.07, at Elkhorn; least monthly, 2.42, at Martinsburg.

Wind.—Prevailing direction, west.—*W. W. Dent, Observer, Weather Bureau, Parkersburg, director.*

WISCONSIN.

Temperature.—Maximum, 86, at Koepenick, 30th; minimum, 22, at Columbus, 8th, and at Phillips, 12th.

Precipitation.—Greatest monthly, 11.75, at Mineral Point; least monthly, 2.15, at Butternut.

Wind.—Prevailing direction, northeast.—*W. L. Moore, Local Forecast Official, Weather Bureau, Milwaukee, director.*

WYOMING.

Temperature.—Maximum, 92, at Casper, 26th; minimum, 11, at Lander, 5th; greatest monthly range, 70, at La Barge and Lander; least monthly range, 44, at Bitter Creek.

Precipitation.—Greatest monthly, 4.90, at Wheatland; least monthly, 0.60, at La Barge.

Wind.—Prevailing direction, west.—*E. M. Ravenscraft, Observer, Weather Bureau, Cheyenne, director.*

CONTRIBUTIONS AND ORIGINAL ARTICLES.

THUNDERSTORMS OF MAY 3, 1892, IN NEW YORK STATE.

[By Mr. E. T. TURNER, Meteorologist to the New York State Weather Service.]

This system of storms was of unusual severity and magnitude. At 8 a. m. an area of high pressure, 30.20, lay off the Florida coast, and a trough-like depression extended from Texas over the Upper Lakes, with lowest pressure, 29.70, over Iowa. At 8 p. m. the center of disturbance lay to the north of Lake Huron, with pressure 29.54. From the Atlantic coast over New York to the Great Lakes the pressure had decreased 0.20 inch. At 2 p. m. the temperature was about 10° above the normal in the western part of the state, and ranged from 74° near Lake Ontario to 78° on the southern border. The weather was also unusually warm in the northern part of the state, while on the coast it was several degrees below the normal. At 2 p. m. the winds were light and southerly, with a westerly component in the section west of the central lakes, and an easterly component at a great number of stations in the eastern section. At 8 and 9 p. m. the wind-directions were nearly the same as at 2 p. m., both in the front and rear of the storm.

During May 1st and 2d the sky had been overcast, and general rains occurred on both days. Thunderstorms were reported from Humphrey, Cattaraugus Co., on the 1st and 2d, and from Long Island on the 2d. At 7 a. m., 2d, the sky was generally overcast, excepting in the central part of the southern section and in the western Saint Lawrence valley, where the cloudiness ranged from 5 to 6 (scale 10). At 2 p. m. the sky continued overcast in the western section and northern highlands; elsewhere the cloudiness had decreased, and at Ithaca the cloudiness was 5 cumulus moving west.

The storm was first reported from stations near the Niagara River between 1.30 and 2 p. m. It was last noted on the eastern border of the state about midnight, and on central Long Island about 2 a. m., 4th. The storm-front was not continuous, and presented many local variations of character and intensity; but the general line of advance extended over the state in a direction from southwest to northeast, the extremity near Lake Ontario being constantly in advance of the southern portion at the Pennsylvania border. There is evidence that the center of the storm, or convex front, moved over or near Lake Ontario at a rate of about 50 miles per hour in an east-northeast direction, and continued in that direction to Lake Champlain. This direction of the storm-center is not the usual one, and more data is needed to verify it. If this supposition is correct, a series of electrical disturbances which occurred in the northern part of the state between 5 and 8 p. m. fall into the general storm system; otherwise they must be regarded as isolated storms.

The most detailed account of the conditions attending the storm are furnished by self-recording instruments at the Ithaca station, as follows: The pressure had fallen from 29.148 at 8 a. m., 3d, to 28.980 at 5.30 p. m., when the storm reached the station and rain began. At 6.05 p. m. there was an increase of pressure of .07 inch in 15 minutes, during the heaviest rainfall. At

7 p. m. the pressure had decreased .03 inch. The temperature was 50° at 6 a. m., reached a maximum of 77° at 2 p. m., and remained nearly stationary until 6.05 p. m. At that time a fall of 15° occurred in 10 minutes. From 7 to 8 p. m. the temperature remained nearly stationary at 62°. No rain fell until 6.05 p. m. From 6.05 to 6.15 p. m. 0.52 of rain fell, and from 6.15 to 7.00 p. m. about 0.20 inch fell. During the afternoon the wind was from the south, the velocity being 8 to 12 miles per hour. At 6 p. m., immediately in advance of the storm, the wind changed to westerly, blowing out from the storm, and the velocity increased to 36 miles per hour. Soon after the storm-front reached the station the wind shifted to east, and it remained in that quarter one hour.

Thermograph records at other stations, Dunkirk and Arkwright, Chautauqua Co. (The Arkwright station is located near a hill top, 5 miles southeast of and 670 feet above Dunkirk.): A comparison shows the superheated condition of the surface air, and also that the temperature fell to the same point, 60°, during the storm. At Dunkirk the temperature at 6 a. m. was 50°, and the maximum, 78° 5, occurred at 12.30 p. m. At 1.45 p. m. a fall of 15° occurred in 10 minutes, and at 2.30 p. m. the temperature was 60°. At Arkwright the temperature at 6 a. m. was 55° 5, maximum 72° at 2.15 p. m. Between 3 and 3.50 p. m. the temperature fell from 72° to 60°. (The long interval between the phenomena at the two stations may be due to errors of thermograph clocks). At Hess Roads Station, on the shore of Lake Ontario, 65 miles north-northeast from Dunkirk, the temperature at 6 a. m. was 45°, maximum 74° at 1.35 p. m., temperature 70° at 2.15 p. m., 65° at 2.30 p. m., and 63° at 3.25 p. m. At other stations the greatest fall in temperature occurred on the western border of the state, where it amounted to 20°. As the storm moved eastward the fall became less; in the central lake region it amounted to about 17°, and on the eastern border of the state was 2° to 5°. This difference was probably due, in part, to the nocturnal cooling of the surface air.

There was a great local variation in the rainfall attending the storm. The amount in the central and western parts of the state averaged about 0.50 inch, the greater part probably falling within a few minutes after the commencement of the storm. The rainfall was somewhat greater in the eastern part of the state, where the shower was of longer duration. The only part of the state where no rain fell was the northern portion of the Saint Lawrence Valley, and in the northern Adirondacks. Hail the size of peas was reported at three scattered stations: Eden, Oswego, and Fleming. The wind force showed great local variations, and cannot well be summarized. The maximum velocities were all entered under the head "during the storm," with the wind blowing from the west, or out from the storm.

Chart V, with this number of the REVIEW, shows the line of advance of the thunderstorms of May 3, 1892, the storm-intensity in the different parts of the state, and the location of storms which occurred in advance of the main disturbance.

METEOROLOGICAL TABLES.

Meteorological record of Army post surgeons, voluntary, and other co-operating observers, May, 1892.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean.			Max.	Min.	Mean.	
Alabama.	°	°	°	Ins.	Alabama—Cont.	°	°	°	Ins.
Bermuda*†	88	45	71.0	1.09	Newburgh†	87	43	68.3	3.59
Bessemer	90	44	71.1	2.85	Newton*†	90	50	71.5	0.86
Brewton†	95	44	69.1	3.80	Opelika†	94	42	70.0	2.72
Carrollton*†	89	50	70.7	3.20	Oxanna*†	84	42	68.3	4.10
Chepultepec†	79	45	62.0	2.10	Pine Apple†	96	45	73.1	3.11
Citronelle†	86	50	74.3	1.97	Pittsborough†	90	54	74.8	1.50
Claiborne Landing†	95	45	73.2	3.90	Pushmataha†	89	47	69.7	8.94
Cordova†	96	51	75.1	1.15	Selma†	88	41	67.8	4.57
Daphne†	96	51	75.1	1.15	Scottsboro†	88	41	67.8	4.57
Decatur†	92	39	68.5	2.71	Sturdevant†	88	41	67.8	4.57
Decatur‡	92	39	68.5	2.71	Talladega†	88	41	67.8	4.57
Double Springs†	83	47	67.6	3.36	Talladega Falls†	88	41	67.8	4.57
Eufaula†	96	45	74.2	3.31	Thomasville†	93	46	72.0	6.17
Eufaula‡	94	43	71.5	3.36	Tuscaloosa†	89	50	69.3	3.36
Evergreen†	90	46	72.4	2.83	Tusculum‡	89	50	69.3	3.36
Fayette C. H.†	87	45	69.6	3.46	Union Springs‡	93	42	72.2	1.70
Florence‡	89	42	68.8	3.43	Union Springs‡	94	44	74.0	3.42
Fort Deposit†	98	45	73.2	1.62	Valley Head†	85	44	66.0	4.39
Gadsden†	98	45	73.2	1.62	Walker Springs†	94	50	77.3	3.39
Geneva†	100	51	75.6	1.08	Warrior†	98	45	74.4	1.56
Greensborough†	88	46	70.9	3.88	Wiggins†	98	45	74.4	1.56
Healing Springs†	93	36	69.0	4.75	Wilsonville†	98	45	74.4	1.56
Highland Home†	90	48	72.4	2.86	Alaska.	68	34	44.8	3.25
Jasper†	86	40	66.4	3.29	Killisnoo†	68	34	50.4	5.90
Jemison†	87	53	73.2	3.65	Arizona.	105	47	74.6	0.41
Livingston‡	86	44	69.3	4.93	Aris. Can. Co. Dam.†	105	47	74.6	0.41
Livingston‡	90	45	70.7	5.03	Benson*†	105	50	73.0	0.00
Lynn†	90	45	70.7	5.03	Bisbee†	92	40	66.6	0.00
Marion†	91	44	70.8	1.99	Calabasas†	94	34	66.0	0.04
Maysville†	83	47	66.0	5.93	Casa Grande*†	105	54	77.9	0.34
Mountain Home†	89	40	67.2	3.73	Chiricahua Mts†	97	37	67.3	0.00
Mount Willing†	89	45	72.0	3.95	Crittenden*†	97	37	67.3	0.36

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean.			Max.	Min.	Mean.	
Arizona—Cont'd.	°	°	°	Ins.	Arizona—Cont'd.	°	°	°	Ins.
Dos Cabezas*†	82	50	67.2	T.	Walnut Grove†	90	34	63.3	0.00
Dragon Summit*†	83	50	75.2	0.04	Walnut Ranch*†	90	34	63.3	0.00
Dudleyville†	103	40	71.0	0.35	Whipple Barracks	89	13	54.3	0.85
Farleys Camp	96	50	74.8	0.25	Willcox*†	92	63	77.2	1.03
Flagstaff*†	84	31	50.7	7.55	Wilcox†	92	63	77.2	1.03
Florence†	105	43	73.0	0.45	Winslow*†	93	43	71.4	0.40
Fort Apache	88	28	56.8	0.36	Wood Canyon	93	43	71.4	0.40
Fort Bowie	92	40	67.2	0.00	Woodruff†	93	43	71.4	0.40
Fort Grant	93	34	66.0	0.35	Yuma*†	103	61	76.6	0.00
Fort Huachuca	92	33	65.2	0.06	Arkansas.				
Fort Mohave†	115	45	77.7	0.38	Arkadelphia†	90	34	63.3	0.00
Gila Bend*†	96	60	79.5	0.23	Arkansas City†	90	40	68.1	9.30
Gila Bend‡	110	58	83.6	0.11	Black Rock*†	90	40	68.1	9.30
Grand Central Mill	92	33	65.2	0.06	Brinkley†	84	46	67.8	10.06
Holbrook†	87	34	57.0	0.17	Camden†	89	44	68.8	5.83
Lochiel*†	92	47	67.7	0.19	Camden‡	89	44	68.8	5.83
Maricopa†	110	63	82.5	0.14	Conway*†	83	51	67.0	10.01
Mount Huachuca†	94	36	66.6	0.00	Corner Stone*†	86	56	72.4	6.68
Natural Bridge†	94	36	66.6	0.00	Dallas†	87	39	66.5	15.80
Navajo Springs†	94	36	66.6	0.00	Dardanelle†	87	39	66.5	15.80
New River†	99	43	70.2	0.29	El Dorado†	87	35	66.0	6.53
Oracle†	91	36	66.9	0.00	Fayetteville†	85	37	63.1	12.07
Pantano*†	97	42	72.3	0.62	Forrest City†	87	46	69.4	7.55
Panyon†	94	36	61.8	0.35	Fulton†	88	39	64.8	7.52
Peoria†	104	45	75.0	0.18	Gaines Landing†	88	39	64.8	7.52
Phoenix†	106	39	75.3	0.15	Harrison†	88	39	64.8	7.52
Red Rock*†	106	50	83.8	0.49	Helena†	89	45	70.4	5.19
Saint Johns†	106	33	69.6	0.08	Hope†	93	40	70.4	12.75
San Carlos	106	63	78.1	0.00	Hot Springs	90	38	65.7	12.45
San Carlos*†	106	63	78.1	0.00	Lead Hill†	95	44	70.8	8.50
Signal†	105	44	73.4	0.85	Lonoke*†	96	40	70.6	10.37
Tevison†	105	44	73.4	0.85	Madding†	96	40	70.6	10.37
Texas Hill*†	111	42	76.2	0.00	Malvern†	84	41	70.4	7.47
Tucson‡	103	43	73.8	0.36					

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
Arkansas—Cont'd.	°	°	°	Inch.	California—Cont'd.	°	°	°	Inch.
Newport a†	85	42	68.9	12.27	Kingsburgh a†	106	45	69.0	1.11
Osceola†	85	42	68.9	12.25	Knights Landing a†	100	46	63.4	2.44
Osark†	90	47	67.0	9.03	La Grange a†	104	43	65.3	3.04
Ozone†	81	38	62.5	14.00	Lathrop a†	105	48	66.6	1.31
Pine Bluff†	89	46	71.2	12.14	Laurel a†	98	41	60.1	3.93
Prescott†	86	42	70.4	11.01	Lemoore a†	105	44	71.5	1.13
Rogers†	90	43	66.5	12.66	Livermore a†	98	45	62.8	1.30
Russellville†	86	37	63.6	12.66	Livingston a†	102	43	68.9	1.75
Stuttgart†	90	43	66.5	11.26	Lodi a†	99	38	63.2	2.47
Texasana†	88	46	69.6	10.95	Long Beach a†	91	45	63.9	...
Washington†	91	44	71.2	6.31	Los Angeles a†	101	49	67.4	2.19
Winslow†	84	31	70.3	...	Los Banos a†	95	49	72.9	0.90
	70	43	63.1	12.83	Los Gatos a†	100	48	64.6	2.88
					Los Gatos b†	100	40	61.8	3.05
California.					Mammoth Tank a†	110	58	84.6	0.00
Alcalde a†	105	49	71.1	0.92	Martinez a†	90	50	63.9	1.80
Almaden a†	98	47	61.1	2.80	Marysville a†	95	45	65.5	2.94
Alvarado†	94	42	62.4	1.96	Menlo Park a†	90	46	64.8	1.43
Annaheim†	103	55	69.3	1.48	Merced a†	106	45	67.1	2.47
Antioch a†	97	47	65.6	0.76	Milton (near) a†	100	45	62.8	3.02
Aptos a†	90	45	61.3	2.47	Modesto a†	98	52	70.1	1.14
Aracata a†	76	30	53.8	3.75	Mohave a†	104	41	69.0	0.26
Athlone a†	105	45	67.6	2.29	Monson a†	101	48	71.5	1.19
Auburn a†	94	45	64.4	4.55	Montague a†	96	32	59.7	1.40
Bakersfield a†	103	50	69.8	0.41	Monterey a†	79	48	58.8	0.83
Bakersfield b†	107	39	67.6	0.28	Monterey (Hotel)				
Beaumont a†	95	40	63.2	1.87	del Monte a†	87	47	58.9	...
Belmont a†	94	47	64.3	...	Napa City a†	100	40	58.3	4.00
Berkeley a†	107	52	72.3	1.82	Napa City b†	93	41	61.1	2.73
Berkeley b†	90	43	56.8	2.97	National City†	94	45	61.6	1.40
Bishop Creek a†	99	43	71.4	0.25	Needles†	107	49	79.5	0.45
Boca a†	80	24	45.3	3.10	Nevada City a†	92	36	56.7	5.80
Borden a†	105	46	67.0	1.96	Newark a†	94	50	63.1	1.24
Boulder Creek a†	98	41	69.5	6.03	Newcastle†	90	38	61.6	4.23
Brentwood a†	100	46	65.2	0.72	Newhall a†	101	44	64.9	2.08
Brighton a†	101	41	64.9	2.05	Newman a†	101	57	72.3	0.81
Byron a†	102	46	66.6	0.82	Niles a†	97	46	64.9	2.34
Caliente a†	102	47	70.0	1.00	Nordhoff†	100	34	61.2	1.39
Calistoga a†	96	44	65.1	0.00	Norwalk a†	102	50	64.2	1.50
Campo†	...	...	...	...	Oakland a†	89	42	58.4	2.49
Capitola a†	94	43	61.4	0.00	Oakland b†	82	51	60.6	2.20
Castroville a†	88	50	61.2	1.54	Ogilby a†	119	54	84.5	0.10
Centerville a†	101	...	...	...	Oleta a†	91	41	61.8	4.54
Chico a†	98	42	64.9	3.24	Ontario a†	100	42	66.3	2.15
Cisco a†	71	20	41.8	8.30	Orangevale†	100	37	62.6	3.84
Citrus a†	102	42	70.2	0.70	Orland a†	106	43	69.9	2.50
Claremont†	95	39	60.6	3.51	Oroville a†	99	47	65.9	3.24
Colfax a†	94	36	59.7	6.14	Pajaro a†	95	47	60.4	3.22
Colton a†	100	40	64.1	1.44	Palermo†	94	38	62.8	2.81
Corning a†	103	44	65.1	1.63	Palm Springs a†	117	60	86.3	0.12
Crete City†	...	...	...	...	Paso Robles a†	101	40	63.1	1.88
Crofton a†	100	50	65.5	1.81	Petaluma a†	94	47	61.8	2.38
Davisville a†	97	48	67.3	2.08	Placerville a†	94	43	63.2	5.35
Davisville b†	94	43	65.2	2.34	Placerville b†	96	33	58.2	5.87
Delano a†	107	47	70.4	0.43	Pleasanton a†	101	45	65.0	1.30
Delta a†	103	30	64.6	5.22	Pomona a†	102	42	60.3	2.40
Downey a†	102	52	67.8	2.09	Porterville a†	104	48	72.7	0.65
Drytown a†	95	36	60.8	3.75	Puente a†	101	48	66.8	1.84
Duarte a†	100	42	64.2	4.35	Red Bluff a†	103	45	66.3	0.30
Dunnigan a†	96	46	70.3	2.18	Red Bluff b†	104	47	67.3	0.00
Dunsmuir a†	97	35	59.7	3.96	Redding a†	108	41	67.7	3.23
Edgewood a†	89	38	55.3	1.03	Redlands a†	103	47	70.8	4.44
El Casco a†	102	40	65.9	0.00	Riverside a†	105	40	64.9	1.30
El Dorado a†	98	44	63.8	4.91	Riverside b†	102	40	63.8	1.04
Elmira a†	100	43	65.4	2.82	Rocklin a†	98	44	64.8	4.88
El Verano a†	95	45	66.2	2.35	Rumsey a†	100	50	70.5	2.78
Emigrant Gap a†	79	29	48.9	5.00	Sacramento a†	90	34	59.8	2.57
Esparto a†	100	44	66.4	1.74	Sacramento b†	90	46	65.4	1.89
Evergreen a†	...	...	...	...	Sacramento c†	84	49	64.1	1.89
Exeter a†	103	46	69.6	1.41	Salinas a†	98	47	61.0	1.53
Farmington a†	102	40	65.9	2.59	Salinas b†	95	48	64.4	1.29
Felton a†	102	44	64.9	4.24	Salton a†	115	57	82.8	0.10
Fernando a†	98	45	65.1	1.68	San Ardo a†	110	48	73.6	1.30
Flora a†	98	50	68.4	1.34	San Ardo b†	107	40	62.4	1.61
Florin a†	99	36	62.2	...	San Bernardino†	95	36	61.8	1.93
Folsom City a†	97	48	65.9	4.15	San Gabriel a†	98	47	66.3	3.18
Folsom City b†	...	...	...	...	San Jose a†	95	47	61.4	1.60
Forestville†	92	30	55.1	4.37	San Jose b†	95	35	60.2	1.05
Fort Bidwell†	80	28	52.8	1.57	San Mateo a†	87	48	60.2	1.57
Fresno a†	108	48	71.4	1.30	San Miguel a†	103	42	68.4	1.25
Fruto a†	98	48	66.3	4.08	San Pedro a†	98	53	65.8	1.29
Galt a†	98	54	72.8	3.05	Santa Ana a†	96	50	69.9	1.92
Georgetown†	88	33	57.6	7.58	Santa Barbara a†	96	42	60.3	1.12
Gilroy a†	98	46	61.3	1.21	Santa Barbara b†	96	53	65.6	0.62
Girard a†	95	36	61.4	1.16	Santa Clara a†	93	42	59.3	1.62
Glen Ellen a†	95	45	62.3	4.33	Santa Cruz a†	91	47	60.4	3.63
Goshen a†	105	40	67.3	1.20	Santa Cruz b†	95	38	58.0	3.95
Grass Valley a†	...	...	...	...	Santa Margarita a†	95	38	60.6	2.65
Haywards a†	88	47	60.1	1.60	Santa Maria a†	99	34	60.6	1.15
Hollister a†	99	44	61.3	1.33	Santa Monica a†	79	49	63.4	2.13
Hornbrook a†	96	38	61.6	0.50	Santa Paula a†	86	40	64.0	1.80
Huron a†	109	50	73.6	0.52	Santa Rosa a†	87	40	61.8	3.78
Hyde Ranch†	...	...	...	...	Selma a†	98	45	70.8	0.00
Hydesville†	77	35	53.4	2.42	Shasta a†	93	30	55.4	4.72
Independence†	96	32	64.2	0.96	Shingle Springs a†	93	42	66.5	1.98
Indio a†	106	58	78.8	0.14	Sims a†	99	33	59.5	7.27
Ione a†	97	45	61.1	2.89	Sisson a†	95	32	53.0	3.74
Iowa Hill a†	92	36	60.1	6.57	Soledad a†	98	46	61.5	0.85
Jackson a†	95	33	58.2	3.85	Sonoma a†	93	40	61.2	2.55
Jolon a†	...	...	...	...	Sonoma b†	93	34	62.9	3.72
Julian†	90	32	56.1	3.55	South Vallejo a†	86	47	59.9	1.59
Keeler a†	92	43	67.6	0.50	Spadra a†	102	48	64.9	0.00
Keene a†	97	40	63.9	0.60	Steeles a†	93	39	58.5	2.49
Kennedy Gold	...	...	...	...	
Mine a†	92	40	62.2	4.94					
King City a†	102	44	59.8	1.08					

Meteorological record of voluntary observers, &c.—Continued.

Stations.		Temperature. (Fahrenheit.)			Precip'n.	Stations.		Temperature. (Fahrenheit.)			Precip'n.								
		Max.	Min.	Mean				Max.	Min.	Mean									
California—Cont'd.					°	°	°	Ins.	Colorado—Cont'd.					°	°	°	Ins.		
Stockton a	100	41	63.9	1.44	Stockton b	97	48	69.6	1.84	Smoky Hill Mine†	78	25	44.0	3.24	Stamford	80	24	48.0	0.80
Summit	64	22	42.9	6.30	Suisun City	99	50	63.1	2.52	Steamboat Spring†	80	24	48.0	2.00	Surface Creek†	83	29	54.4	1.07
Susanville	85	33	55.0	1.35	Sutter Creek	88	32	56.0	3.61	Table Rock	75	26	45.6	1.70	T. S. Ranch†	82	30	49.0	1.16
Tehachapi	90	30	61.6	0.55	Tulare	107	43	66.2	0.84	Thon†	89	25	51.0	2.70	Vilas	...	...	...	2.03
Tehama	98	47	65.5	4.47	Turlock	102	48	70.8	1.22	Villa Grove†	...	...	...	0.72	Wallet†	...	...	...	5.20
Templeton	103	43	61.1	2.17	Upper Lake	95	34	58.5	3.71	Ward District	...	...	...	4.08	Wilde	...	...	...	2.74
Towles	90	30	57.1	8.10	Vacaville a	102	49	64.2	3.16	Yuma	...	...	...	3.46	Zuck	...	...	...	3.94
Tracy	105	51	71.1	1.00	Vacaville b	106	48	66.8	1.55	Connecticut.									
Traver	109	48	70.7	1.16	Valley Springs	99	48	66.0	2.93	Canton	88	35	56.6	6.80	Colchester	80	34	54.3	5.05
Tropico	94	49	63.8	1.59	Vina	100	45	67.0	1.67	Falls Village	...	...	...	0.43	Hartford b	...	...	...	5.65
Truckee	82	28	48.2	4.20	Volcano Springs	119	57	86.6	0.01	Lake Konomoc	...	...	...	5.31	Lake Konomoc	...	...	...	5.31
Tulare	107	43	66.2	0.84	Volta	106	48	66.9	0.66	Lebanon	80	...	...	5.93	Lebanon	...	...	...	5.93
Turlock	102	48	70.8	1.22	Walla Walla Ck	80	29	55.0	1.29	Manassah	80	34	53.6	5.00	Manassah	...	...	...	5.00
Upper Lake	95	34	58.5	3.71	West Butte	98	34	...	2.82	New Hartford a	85	36	52.2	6.14	New Hartford b	...	...	...	5.96
Vacaville a	102	49	64.2	3.16	Westley	102	51	71.9	0.85	N. Grosvenor Dale	74	31	54.1	0.00	N. Grosvenor Dale	...	...	...	0.00
Vacaville b	106	48	66.8	1.55	Whittier	101	40	63.6	2.96	North Woodstock	...	...	...	6.80	North Woodstock	...	...	...	6.80
Valley Springs	99	48	66.0	2.93	Williams	106	50	68.9	1.69	Norwalk a	88	34	59.3	3.05	Norwalk b	78	32	55.4	5.13
Vina	100	45	67.0	1.67	Willams	103	44	68.2	1.74	Norwalk b	78	32	55.4	5.13	South Manchester	...	...	...	5.47
Volcano Springs	119	57	86.6	0.01	Willow a	99	38	64.0	2.60	Stevens	...	...	...	4.58	Stevens	...	...	...	4.58
Volta	106	48	66.9	0.66	Willow b	98	42	65.7	2.95	Thompson	78	37	54.6	...	Thompson	...	...	...	...
Walla Walla Ck	80	29	55.0	1.29	Winchester†	103	38	63.7	0.61	Voluntown†	80	32	55.2	4.58	Voluntown†	...	...	...	4.58
West Butte	98	34	...	2.82	Winters†	102	30	72.1	2.08	Wallingford†	...	...	...	4.57	Wallingford†	...	...	...	4.57
Westley	102	51	71.9	0.85	Woodland	92	42	62.6	2.22	Waterbury	79	40	56.6	5.55	Waterbury	...	...	...	5.55
Whittier	101	40	63.6	2.96	Yountville	...	41	...	3.55	West Simsbury	...	...	...	6.17	West Simsbury	...	...	...	6.17
Williams	103	44	68.2	1.74	Yuba City	96	49	68.0	3.03	Delaware.									
Willow a	99	38	64.0	2.60	Colorado.									Dover†	86	44	61.9	5.59	
Willow b	98	42	65.7	2.95	Alma†	61	13	37.6	0.87	Kirkwood	82	...	...	60.6	Kirkwood	...	...	...	60.6
Winchester†	103	38	63.7	0.61	Amherst†	...	...	...	5.15	Seaford†	90	43	63.3	3.15	Seaford†	...	...	...	3.15
Winters†	102	30	72.1	2.08	Avoca	...	...	...	7.22	District of Columbia.									
Woodland	92	42	62.6	2.22	Box Elder	...	...	...	5.30	Dist. Res. Serv.†	86	49	64.6	4.32	Dist. Res. Serv.†	...	...	...	4.32
Yountville	...	41	...	3.55	Brandon	...	...	...	6.10	Kendall Green†	85	50	64.5	4.21	Kendall Green†	...	...	...	4.21
Yuba City	96	49	68.0	3.03	Breckenridge†	70	11	37.7	3.09	Long Bridge†	...	...	...	3.98	Long Bridge†	...	...	...	3.98
					Brush	...	...	...	3.12	Rec. Res. Serv.†	85	48	64.4	4.81	Rec. Res. Serv.†	...	...	...	4.81
					Canon City†	90	34	57.9	1.51	West Washington†	93	44	67.4	4.10	West Washington†	...	...	...	4.10
					Carson†	66	27	40.4	0.80	Florida.									
					Castle Rock†	85	27	52.8	1.42	Amelia†	89	54	72.6	3.99	Amelia†	...	...	...	3.99
					Chiriquing†	...	...	...	9.73	Archer†	97	48	74.2	1.83	Archer†	...	...	...	1.83
					Climax†	53	17	29.0	2.50	Avon Park†	90	55	74.2	1.17	Avon Park†	...	...	...	1.17
					Collbran	...	...	...	1.88	Bristol†	98	52	76.6	2.63	Bristol†	...	...	...	2.63
					Colorado Springs†	79	30	51.5	2.01	Brooksville†	93	54	74.6	2.16	Brooksville†	...	...	...	2.16
					Como (near)†	65	18	39.2	0.95	De Land b	91	49	73.4	...	De Land b	...	...	...	...
					Cope†	88	23	52.9	6.16	Eustis†	94	54	76.6	2.34	Eustis†	...	...	...	2.34
					Crook†	96	30	53.0	5.73	Federal Point†	92	50	73.7	1.16	Federal Point†	...	...	...	1.16
					Cumbres†	62	12	37.3	0.40	Fort Meade†	90	52	74.5	2.65	Fort Meade†	...	...	...	2.65
					Del Norte†	81	19	49.9	0.29	Gainesville†	96	54	76.8	2.46	Gainesville†	...	...	...	2.46
					Delta†	84	29	51.6	0.27	Grasmere	92	51	75.2	...	Grasmere	...	...	...	...
					Dillon†	...	...	...	3.74	Green Cove Spgs†	92	49	73.8	1.71	Green Cove Spgs†	...	...	...	1.71
					Downing†	86	20	52.5	2.12	Homeland†	93	51	75.1	2.42	Homeland†	...	...	...	2.42
					Dumont	...	...	...	2.21	Hypoxulox†	95	63	80.4	0.67	Hypoxulox†	...	...	...	0.67
					East Dale	...	...	...	0.22	Kissimmee City†	...	63	...	2.34	Kissimmee City†	...	...	...	2.34
					Fort Collins (near)†	...	...	...	4.18	Manatee†	94	50	76.1	3.16	Manatee†	...	...	...	3.16
					Fruita†	92	30	57.8	1.11	Merritts Island†	90	60	78.3	3.13	Merritts Island†	...	...	...	3.13
					Garnett	...	...	...	1.01	Mullet Key†	98	67	78.4	0.54	Mullet Key†	...	...	...	0.54
					Gaynor	...	...	...	5.22	Myers†	90	56	74.4	5.32	Myers†	...	...	...	5.32
					Georgetown†	69	24	45.4	2.96	Ocala†	92	61	75.4	4.62	Ocala†	...	...	...	4.62
					Glen Eyrie†	78	29	50.3	...	Orange City†	93	51	75.0	4.78	Orange City†	...	...	...	4.78
					Gold Hill	...	...	...	3.90	Orlando†	96	57	76.2	2.67	Orlando†	...	...	...	2.67
					Grand Junction†	88	35	60.0	0.65	Oxford†	92	55	76.5	3.72	Oxford†	...	...	...	3.72
					Greeley†	...	...	...	2.36	St. Andrews Bay†	93	56	77.2	0.51	St. Andrews Bay†	...	...	...	0.51
					Greenhorn†	89	24	51.8	2.90	St. Francis Bks	92	53	77.8	1.45	St. Francis Bks	...	...	...	1.45
					Grover†	79	30	48.9	2.47	St. Petersburg†	93	50	75.8	0.97	St. Petersburg†	...	...	...	0.97
					Hugo†	92	28	53.6	5.35	Tallahassee†	88	49	72.8	1.69	Tallahassee†	...	...	...	1.69
					Husted†	84	29	51.0	1.74	Tarpon Springs†	89	54	74.2	1.53	Tarpon Springs†	...	...	...	1.53
					Idaho Springs†	73	26	45.3	1.70	Westville†	91	55	76.8	2.06	Westville†	...	...	...	2.06
					Jefferson†	62	20	38.6	4.06	Georgia.									
					Julesburg†	89	30	51.0	3.22	Adairsville†	92	40	68.8	2.54	Adairsville†	...	...	...	2.54
					La Jara†	80	24	50.8	0.76	Albany†	95	47	75.4	1.05	Albany†	...	...	...	1.05
					Lamar†	90	30	58.7	3.27	Allapaha†	94	40	74.4	1.20	Allapaha†	...	...	...	1.20
					La Porte	...	...	...	4.30	Americus†	90	44	75.6	4.38	Americus†	...	...	...	4.38
					Las Animas†	88	30	54.1	1.13	Athens a†	88	45	70.1	1.75	Athens a†	...	...	...	1.75
					Lavender	...	...	...	1.60	Athens b†	92	41	69.7	1.97	Athens b†	...	...	...	1.97
					Lay†	79	33	48.8	1.37	Blackhawk†	91	51	74.4	1.69	Blackhawk†	...	...	...	1.69
					Le Roy†	82	30	49.2	2.53	Blakely	95	40	74.3	1.40	Blakely	...	...	...	1.40
					Leslie	...	...	...	2.74	Camak†	92	48	72.4	1.03	Camak†	...	...	...	1.03
					Longmont†	84	31	53.0	4.20	Canton†	...	...	...	2.66	Canton†	...	...	...	2.66
					Loveland	...	...	...	3.93	Cordele†	100	42	75.0	2.40	Cordele†	...	...	...	2.40
					Manhattan	...	...	...	2.33	Columbus†	90	47	73.2	2.42	Columbus†	...	...	...	2.42
					Middle Box Elder	...	...	...	4.05	Dahlonega†	92	44	67.4	2.12	Dahlonega†	...	...	...	2.12
					Minneapolis†	...	...	...	4.68	Darien†	96	50	75.2	1.78	Darien†	...	...	...	1.78
					Monte Vista a	77	22	49.8	1.37	Diamond†	88	36	63.4	2.97	Diamond†	...	...	...	2.97
					Moraine†	69	24	42.7	3.21	Dublin†	93	45	...	2.14	Dublin†	...	...	...	2.14
					Pagoda (near)†	80	27	48.4	2.40	Eastman†	94	48	74.3	3.38	Eastman†	...	...	...	3.38
					Paonia†	...	...	...	0.56	Elberton†	91	45	72.9	0.55	Elberton†	...	...	...	0.55
					Parachute†	85	30	54.8	2.60	Folkston†	92	56	77.9	1.34	Folkston†	...	...	...	1.34
					Red Cliff	...	...	...	1.50	Forsyth†	93	52	73.4	2.70	Forsyth†	...	...	...	2.70
					Rico	...	...	...	2.10	Fort Gaines†	92	45	73.8	1.81	Fort Gaines†	...	...	...	1.81
					Robb†	89	26	53.5	4.31	Gainesville†	88	40	66.0	2.69	Gainesville†	...	...	...	2.69
					Rocky Ford†	90	31	57.4	3.26	Gallsville†	87	51	70.1	2.21	Gallsville†	...	...	...	2.21
					Saint Cloud	...	...	...	4.31	Griffin†	94	46	72.2	1.22	Griffin†	...	...	...	1.22
					San Acacia	...	...	...	0.03	Hawkinsville†	91	48	73.6	1.53	Hawkinsville†	...	...	...	1.53
					Sanborn	...	...	...	2.71	Hephzibah†	88	54	71.4	4.91	Hephzibah†	...	...	...	4.91
					San Luis†	82	18	48.4	0.55	La Fayette†	90	40	67.4	2.81	La Fayette†	...	...	...	2.81
					Sedgwick	...	...	...	3.10	La Grange†	92	41	70.3	2.39	La Grange†	...	...	...	2.39
					Selfort	...	...	...	1.95	Lincolnton†	90	44	72.4	1.75	Lincolnton†	...	...	...	1.75

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
<i>Georgia—Cont'd.</i>					<i>Indiana—Cont'd.</i>				
Lithia Springs†	92	37	67.4	1.86	Farmland*†	84	44	59.9	10.25
Louisville†	95	45	72.2	3.44	Franklin†	85	45	61.3	6.81
Lumpkin†	93	48	72.9	3.01	Hammond†	76	30	52.0	8.59
MacArthur†	92	45	71.7	3.81	Hawpach*†	80	41	57.8	13.11
Macon†	92	42	70.6	2.13	Huntingburgh*†	82	45	65.3	11.75
Marietta†	88	42	66.8	1.79	Huntington†				11.45
Marshallville†	89	50	72.7	2.30	Irvington*†	85	45	57.7	9.67
Milledgeville†	90	45	70.6	1.94	Jeffersonville†	88	41	65.1	4.25
Millen†	94	42	72.2	2.96	La Fayette†	84	36	58.8	8.79
Morgan†	91			2.27	Logansport a†				11.05
Newnan†	92	44	70.2	1.35	Logansport b†	85	39	61.6	10.21
Point Peter*†	90	42	70.8	1.00	Marengo*†	88	50	62.8	7.11
Poulan†	94	41	73.3	1.20	Marion†	86	32	60.4	10.71
Quitman a†	94	48	75.6	0.75	Mauzy†	86	35	56.9	6.82
Quitman b†	96	42	72.4	0.67	Michigan City†	82	39	57.3	10.51
Resaca†				2.45	Mount Vernon a†				6.16
Rome†	91	43	67.8	2.77	Mount Vernon b†	85	34	64.3	6.16
Statesborough†	90	54	76.6	3.13	Muncie*†	88	45	60.4	4.88
Thomasville†	94	46	74.7	2.73	New Albany*†	85	45	65.1	4.88
Toccoa†	92	44	68.0	0.78	Point Isabel†	80	35	56.6	11.70
Union Point†	94	45	71.2	0.54	Princeton*†	87	40	64.9	5.50
Washington†	94	47	73.0	1.46	Rockville†	84	36	59.9	8.05
Way Cross†	92	50	74.9	0.90	Rushville†				6.10
Waynesborough†	96	47	73.4	4.26	Seymour†	87	41	62.8	6.14
West Point†	90	52	73.9	2.87	Shelbyville*†	84	43	60.2	8.08
<i>Idaho.</i>					<i>Indian Territory.</i>				
American Falls†	83	28	50.8	2.55	Eufaula†				14.42
Boise Barracks†	91	32	55.6	3.51	Fort Supply†	93	38	63.8	4.48
Donnan City†	76	18	41.8	0.74	Heldton†	88	50	69.0	18.40
Elk City†	84	22	47.6	4.03	Lehigh†	92	41	68.0	9.99
Fort Sherman†	95	28	53.4	2.15	Paula Valley†	95	41	70.2	6.99
Garden Valley†	84	26	50.4	1.45	Purcell†	95	41	68.8	11.95
Henry's Lake†	78	5	41.0	2.26	Sapulpa†	90	40	72.5	12.50
Kootenai†	90	25	51.5	2.85	South McAlester†	90	42	67.8	18.48
Martin†	74	24	45.8	4.27	Tulsa†				12.10
Moscow*†	80	33	51.1	6.16	<i>Iowa.</i>				
Rothburg*†	95	30	49.6	2.27	Algona*†	76	33	51.3	5.29
<i>Illinois.</i>					Alta a†	74	31	48.1	10.39
Alton†				7.87	Amana†	76	34	55.1	7.38
Aurora a†	79	33	54.2	8.29	Ames b†	77	30	52.0	8.66
Aurora b†	78	30	53.5	8.03	Ames c†				8.11
Beardstown†				6.59	Atlantic†	79	35	53.3	8.08
Benson*†	83	35	58.7	8.27	Bancroft†	72	32	50.8	6.47
Bloomington†	88	32	58.8	9.90	Belle Plaine†	81	34	54.6	6.26
Carlinville†	86	37	60.2	7.02	Blacksville†	81	34	55.1	8.97
Centralia*†	84	48		10.90	Blockton†	79	35	56.6	11.21
Charleston†	85	37	60.7	8.77	Carroll†				6.99
Chester†				7.78	Cedar Falls†	76	32	52.5	11.00
Cockrell*†	73	38	54.1	7.78	Cedar Rapids†	76	33	55.3	10.12
Decatur*†	76	38	58.4	5.24	Centerville†	84	30	54.5	10.57
Dixon†	77	34	55.0	8.93	Charles City†	79	34	51.0	5.36
East Peoria†	86	30	59.6	8.52	Clarinda†	79	36	56.3	11.55
Ellsworth†	82	35	56.5	7.60	Clinton†	78	34	55.6	8.41
Fairmount†	80	44	59.6	6.71	College Springs*†	78	29	47.5	8.64
Fort Sheridan†	75	38	52.2	6.51	Corning b†	76	35	55.0	11.62
Golconda*†	85	48	63.8	7.24	Cresco†	73	32	52.4	6.15
Greenville†	87	38	60.6	7.79	Delaware*†				5.99
Griggsville†	82	34	59.9	8.93	Eagle Grove*†				5.16
Havana†	80	38	60.1	7.69	Fairfield†				12.01
Hennepin†				12.57	Fayette†	76	30	52.3	6.66
Irishtown†				6.81	Fort Madison*†	79	42	59.9	8.90
Jordana Grove†	85	41	63.8	5.91	Glenwood†	88	36	57.1	8.89
Kankakee†	79	39	57.8	10.09	Grand Meadow*†	77	34	52.5	8.33
La Grange†	82	37	55.8	8.00	Greenfield†	79	34	52.8	7.68
Lanark*†	74	36	53.2	9.29	Grinnell†	73	33	54.9	9.30
Louisville*†	78	43	61.6	7.00	Grundy Centre*†	72	32	53.6	9.30
Manchester*†	78	42	58.4	7.70	Hampden†	72	32	50.6	15.79
Martinsville*†	86	40	61.3	6.83	Havoclock†	74	32	50.1	5.06
Mascoutah†	86	40		8.15	Hawk Eye†				10.84
Mattoon†	85	39	53.0	6.92	Hopeville†	75	36	54.8	7.11
McLeansborough*†	90	42	64.2	4.94	Hopkinton*†	75	36	52.9	6.18
Mount Carmel†				5.87	Independence†	76	32	52.9	10.47
New Haven†				5.11	Indianola†	77	34	55.6	9.23
Olney a†	85	47	64.2	6.06	Iowa City†	77	34	55.7	6.91
Olney b†	85	44	60.6	8.05	Iowa Falls†	71	33	52.3	7.36
Oswego†	82	36	54.4	13.25	Keosauqua†	80	37	58.0	9.33
Ottawa†	80	31	57.7	6.60	Larrabee†	76	30	51.2	9.33
Palestine†	83	41	61.7	8.37	Le Claire†				9.65
Pana*†	86	45	61.8	7.57	Logan†	80	35	55.8	7.13
Peoria a†	81	41	60.3	7.70	McCausland*†	75	39	54.0	10.02
Peoria b†	83	35	58.8	7.43	Maquoketa*†	78	40	55.4	9.33
Philo†				8.17	Marshalltown†	75	36	53.2	9.73
Quincy†	80	42	58.0	11.05	Maxon*†	82	39	58.6	11.35
Rantoul*†	75	34	53.2	9.18	Mechanicsville†	75	32	53.9	9.97
Riley†	84	34	60.2	7.58	Monticello*†	76	32	54.5	9.87
Rockford†	75	36	54.4	7.76	Mount Pleasant*†	78	35	56.4	11.65
Rushville†	86	50	65.8	11.77	Mount Vernon*†	75	36	55.7	11.34
Saint John*†	75	38	54.5	8.49	Murray†	76	37	55.2	10.33
Sycamore*†	80	35	57.6	4.66	Muscatine†				4.87
Walnut†				9.47	Oange*†				7.95
Warsaw†				9.20	Oskaloosa†	75	34	55.2	6.84
Waukegan†	80	39	59.0	8.33	Panama†	76	32	52.9	10.22
White Hall*†	72	32	54.3	8.91	Richland*†				6.00
Winnebago*†				6.66	Sac City†	75	36	57.6	12.64
<i>Indiana.</i>					Seymour†	79	36	57.6	9.31
Angola†	88	40	59.9	5.32	Spirit Lake†	73	30	49.2	7.26
Ashboro*†	78	41	57.7	6.66	Storm Lake†	75	32	52.4	9.18
Butlerville*†	83	45	62.3	5.89	Tipton†	73	33	55.3	7.54
Cambridge City†	85	38	60.8	5.32	Vinton*†	73	39	54.0	
Columbia City*†	81	38	58.3	11.12					
Columbus*†	84	45	62.0	6.52					
Connersville†	85	40	59.7	5.84					
De Gonia Springs*†	85	46	65.1	5.33					
Delphi†	78	36	56.5	10.16					
Evansville†				4.34					

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
<i>Iowa—Cont'd.</i>	°	°		<i>Ins.</i>	<i>Kentucky—Con.</i>	°	°		<i>Ins.</i>
Washington	82	40	59.2	9.12	Grand Rivers	85	41	66.0	5.62
Webster City*†	72	34	52.0	6.12	Greensburg*†	89	46	66.2	4.92
West Bend*†	75	32	50.7	8.22†	Harrodsburg†	89	38	64.1	5.00
Williams*†	71	33	51.0	6.10	La Grange†	40†	62.8b	6.89	
Winterset†	76	37	54.6	10.70	Louisia†	90	41	64.8	3.91
<i>Kansas.</i>					Middleborough†	88	42	64.8	5.97
Abilene†	86	37	60.2	6.04	Mount Sterling†	88	41	61.8	3.64
Allison†	90	37	54.0	5.88	Munfordville†			64.9	5.96
Altoona*†	87	40	63.7	8.29	Paducah†				2.69
Antelope†	90	34	60.5	7.06	Pellville†	87	40	64.0	3.8
Arkalon†	91	35	59.7	4.58	Richmond*†	85			3.5
Atchison†	83	38	58.4	5.86	Russellville*†	84	50	65.2	7.0
Bellevue†	88	28	55.4	9.30	Shelbyville†	90	39	63.3	8.9
Beckham†				7.45	South Fork†			63.1	3.65
Buffalo Park†				5.22	Springfield†	90	35	62.8	5.65
Burr Oak†	78	38		7.12	Wickliffe*†	85	51	66.5	6.84
Cawker City*†	78	40	55.1	3.98	Williamsburgh†				8.65
Colby†				3.98	<i>Louisiana.</i>				
Coldwater†	89	32	63.6	4.70	Abbeville	91	46	74.9	3.50
Collyer†	92	37	53.6	3.80	Amite City†	93	46	74.6	0.95
Columbus†	92	36	64.2	10.63	Baton Rouge†	92	50	73.6	2.76
Cunningham†	95	36	59.4	4.27	Cameron†	92	40	74.2	0.98
Downs†				6.90	Cheneyville†	92	44	74.0	2.41
Elco†	86	40	61.2	5.15	Clinton*	95	55	77.8	2.69
Elk Falls†	93	43	65.1	8.38	Coushatta*†				1.46
Ellis†	80	35	53.8	4.50	Coushatta b†	96	42	73.2	1.92
Emporia†	84	38	61.1	6.70	Davis	92	38	71.8	1.42
Englewood*†	92	42	62.0	5.97	Delhi†				3.11
Eureka Ranch†	85	34	55.4	4.87	Donaldsonville†	90	42	73.2	3.35
Fort Riley	87	37	57.4	8.00	Emile	90	50	72.5	2.18
Fort Scott†				8.75	Franklin†	92	49	73.0	4.37
Gibson	88	31	53.8	5.14	Girard†				0.66
Gove City*†	96	37	56.3	5.03	Grand Coteau	89	48	73.8	3.83
Grainfield*	84	33	52.8	8.0	Hammond				1.67
Greensburg†	85	35	59.6	5.82	Homer†	90	42	70.7	7.18
Grenola*	94	40	61.8	8.00	Houma†	95	46	74.8	1.25
Grinnell*	96	36	54.6	5.30	Jeanerette	90	44	73.6	2.40
Havensville*†	83	39	57.1	8.18	La Fayette†	89	43	73.8	5.34
Heaston	85	36	57.2	6.23	Lake Charles†	92	55	74.0	1.34
Horton†	81	37	57.1	6.87	Lawrence†	88	57	73.6	1.25
Hoxie†				6.08	Liberty Hill	95	43	72.2	2.15
Hutchinson†	90	38	61.5	4.78	Luling†	88	50	74.7	1.90
Independence†	91	38	65.0	10.64	Marksville†	90	46	73.4	1.55
Kansas City†	84	40	60.6	7.22	Maurepas	86	46	70.6	3.23
Kellogg	93	38	65.0	12.30	Melville†	88	50	74.4	2.39
Kiowa†	90	37	64.4	5.94	Minden†	95	42	72.6	2.67
Kirwin†				5.30	Monroe†	92	46	73.0	1.79
La Crosse†	85	38	58.0	4.68	Natchitoches†	90	41	71.6	1.54
Lakin†	93	27	58.2	4.40	New Iberia	86	48	72.8	4.97
Lawrence†	83	42	60.0	8.51	N. La. Ex. Station	92	40	70.6	2.60
Lebo†	84	35	60.0	7.34	Opelousas†	90	48	74.4	4.60
Leoti†	94	29	55.8	3.68	Paincourtville	90	48	73.6	4.95
Lincoln	75		60.4		Plaquemine	90	44	73.6	5.43
McAllaster*	86	34	54.5	5.80	Rayne†	90	46	74.4	1.65
McPherson†	82	35	58.1	5.88	Roseland	91	45	73.2	2.47
Manhattan a†				6.93	Shell Beach	92	47	74.6	1.3†
Manhattan b†	90	38	57.8	6.62	Schriever†	96	48	70.6	4.12
Manhattan c*†	84	39	55.4	6.77	Sugar Ex. Station†	91	54	75.0	4.13
Marmaton	85	38		10.74	Thebiodeaux				3.35
Medicine Lodge				4.65	Wallace	92	51	73.9	2.18
Minneapolis*	78	40	56.8	4.90	West End				3.10
Monument*†	88	30	51.5	5.75	Winnborough	94	36	71.0	0.90
Morland†	90	32	54.9	4.34	<i>Maine.</i>				
Morse†	80	35	57.8	7.30	Bar Harbor	71	28		2.25
Morton†	92	36	62.1	2.30	Belfast*	68	40	51.4	3.71
New England W'ch†	88	32	54.4	4.35	Bethel	79	28	49.8	4.14
Norton†	89	34	54.6	5.38	Calais	71	26	49.8	2.02
Oakley*†	90	38	57.6	6.11	Cornish*†	79	33	51.9	5.40
Oberlin†				3.37	East Machias†	71	25	48.8	2.88
Ogallah	87	40		4.60	Farmington†	78	17	50.8	3.75
Oswego†	92	35	64.7	9.72	Houlton†	78	22	49.9	2.12
Page City*	88	30	53.8	6.00	Kennebec Arsenal	75	33	52.6	2.97
Pauline†	89	37	60.1	9.50	Kents Hill	73	27	51.2	2.79
Phillipsburgh†				4.70	Lewiston†	76	27	51.2	4.62
Plainville†	82	40	59.7	7.25	Mayfield†	71	24	48.4	3.11
Pleasant Dale*†	84	35	54.3	3.99	Orono†	74	24	51.7	1.94
Quinter†	84	40		7.60	Petit Menan*	60	39	48.0	
Rome*†	90	40	62.9	7.03	West Jonesport*	68	35	45.4	
Salina*†	81	42	58.4	5.75	<i>Maryland.</i>				
Sedan†	90	38	63.5	10.20	Barren Crk Spgs*	85	44	63.7	3.44
Seneca†				7.53	Boetheshville*	86	35	59.7	4.70
Sharon Springs*†	98	30	54.3		Cumberland a†	84	41	62.3	3.31
Shields†	92	32	56.2	7.29	Cumberland b†	92	44	66.2	3.41
Sterling†	97	37	61.9	3.78	Easton†	89	44	64.8	5.05
Tribune†	94	30	54.6	4.31	Fallston*†	85	41	60.2	6.10
Ulysses†	92	38	62.0	4.67	Frederick†	87	41	63.6	2.16
Wakefield*†	92	43	59.4	5.41	Great Falls*	86	44	64.6	3.74
Wa Keeney*†	86	38	56.3		Jewell res	79	51	63.7	4.75
Wallace a†				4.71	McDonogh†	80	43	62.3	3.93
Wallace b*	85	34	55.6	6.00	Mt. St. Marys Col†	87	41	61.8	3.17
Westkan a*	88	35		5.85	New Market*	88	48	61.9	5.55
Westkan b†	85	29†	55.4	4.87	Solomons†	84	47	64.5	2.99
Yates Centre†	85	35	62.4	11.83	Taneytown†				5.37
Zyba				9.67	Woodstock†	89	39	62.3	4.78
<i>Kentucky.</i>					<i>Massachusetts.</i>				
Bowling Green†	90	43	68.0	6.64	Adams a	81	31	55.6	
Canton*†	87	47	66.6	6.68	Adams b				6.70
Carrollton*†	86	37	62.5	6.01	Amherst Ex. St'n a†	81	30	55.0	5.49
Cattlettsburgh†				4.95	Amherst Ex. St'n b	84	28	54.4	6.28
Central City†	88	36	62.3	5.36	Andover†	77	39	53.1	5.81
Earlington	88	44	68.4	6.76	Ashland				5.60
Edmonton†	85	40	64.6	4.97	Blue Hill (sum'†)	79	35	53.5	5.33
Falmouth†				5.55	Blue Hill (valley)†	82	27	54.6	5.16
Frankfort†				10.05	Boston				4.63
Franklin*†	84	42	65.2	6.38	Cambridge a	79	31	55.6	5.35

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean.			Max.	Min.	Mean.	
<i>Massachusetts—Con.</i>					<i>Michigan—Cont'd.</i>				
Cambridge b.	80	37	56.1	6.06	Hayes	82	35	52.0	2.45
Chestnut Hill	83	31	55.8	6.08	Highland Station	83	32	53.4	6.43
Chicopee				7.35	Hillsdale ¹	80	40	55.3	8.61
Clinton				5.58	Howell	84	30	53.8	6.17
Concord f.	82	26	54.3	5.12	Ivan	79	24	50.7	4.00
Cotuit	71	31	52.2	4.86	Jeddo	80	34	52.2	4.00
Dudley	82	34	54.3	4.74	Kalamazoo	78	40	57.2	7.04
Egg Rock, Nahant.	70	37	52.8		Lansing ¹	81	32	54.5	6.31
Fall River a ¹	76	36	55.0	5.87	Lathrop ¹	77	32	50.7	4.48
Fiskdale				5.57	McMillan	67	40	53.5	1.00
Fitchburg a ¹	82	38	58.3	6.43	Madison	83	33	56.2	8.76
Fitchburg b.	83	28	53.7	5.95	Marshall ¹	85	32	55.1	8.44
Florida b.	80	25	48.9	6.48	May	81	33	53.2	5.01
Framingham	83	27	54.8	5.57	Mio	76	32	51.5	3.92
Gilbertville	84	26	54.0	6.81	Montague	76	32	51.1	5.62
Groton	81	29	56.0	6.19	Mottville	83	32	57.0	8.37
Heath a ¹	86	30	54.0		Noble	76	40	56.3	7.87
Hyannis ¹	78	40	57.7	5.36	North Marshall	80	32	57.6	7.48
Kendall Green.	84	36	57.0	5.51	Ovid	82	32	53.7	6.04
Lake Cohasset.	85	24	55.5	5.46	Parkville				9.94
Lawrence	86	29	57.4	5.83	Rawsonville	84	37	57.3	7.91
Leicester	81	32	51.6	5.33	Rockland ¹	80	27	46.0	4.26
Leominster				6.15	Saint Ignace	70	33	47.0	3.51
Long Plain.	77	42	56.0	5.24	Sand Beach	75	33	48.4	2.61
Lowell a.	78	31	54.7	5.86	Standish				2.87
Lowell b.	79	28	55.4		Stanton	79	31	52.4	5.51
Lowell c.	82	28	55.4		Stockbridge				7.16
Ludlow a.	80	27	52.0	6.73	Thornville ¹	85	35	56.2	6.43
Lynn.	77	39	56.6	5.53	Vandana	78	36	55.8	10.01
Manchester a ¹	79	43	55.7	6.32	Vienna				4.59
Middleborough				4.76	Washington	81	33	55.2	6.39
Milton ¹	81	31	53.7	5.02	Weldon Creek	79	23	51.3	4.94
Monroe	79	27	50.7	8.37	White Pigeon a ¹	77	32	53.8	8.16
Monson	85	32	56.1	5.87	Ypsilanti	84	39	58.0	8.92
Mount Nonotuck				4.57	<i>Minnesota.</i>				
Mystic Lake				5.85	Alexandria f.				4.76
Mystic Station.				5.04	Alma City f.	71	30	50.3	5.25
New Bedford a ¹	76	34	52.7	5.51	Ash Creek f.	75	29	52.3	8.25
New Bedford b.	78	32	53.6	5.15	Bingham Lake f.	74	30	49.3	8.33
Newburyport a.				5.71	Bird Island	76	28	50.0	8.74
Newburyport b.				4.64	Caledonia f.	75	31	50.8	6.98
Northampton	83	36	58.4	7.17	Camden f.	76	29	50.3	7.77
North Billerica	83	29	56.6	5.16	Clear Lake a ¹	69	31	49.4	
Plymouth a ¹	82	42	57.2	3.91	Crookston f.	77	27	48.0	3.51
Princeton	80	32	52.8	5.08	Eagle Bend f.	72	22	46.6	4.67
Provincetown	74	34	53.1	3.64	Easton ¹	73	31	50.9	5.04
Randolph				4.85	Fairfield f.	78	29	52.2	7.46
Roberts Dam				5.35	Farmington	73	30	51.0	6.93
Roxbury ¹	78	36	55.6	5.89	Fergus Falls a ¹	72	30	50.5	6.93
Royalston a ¹	78	38	55.2	6.12	Fort Ripley f.				5.29
Salem b.				6.11	Grand Meadow ¹	76	32	50.4	8.66
Savoy	88	26	55.1	5.60	Granite Falls	75	29	48.8	8.80
Somerset ¹	84	41	58.2	4.95	Jackson f.	73	29	49.4	9.71
Springfield Arm ^y	83	37	57.3	6.05	Kimbria f.	76	28	48.6	9.92
Taunton a ¹	85	32	55.4	5.48	L. Winnibigoshish ¹	71	31	46.3	4.97
Taunton b.	80	32	55.6	5.55	Leech Lake ¹	72	30	46.8	6.10
Taunton c.	81	27	54.4	5.93	Maple Plain a ¹	74	32	50.1	5.33
Taunton d.	84	34	55.1	5.21	Minneapolis f.	74	30	51.0	6.36
Turners Falls	78	30	54.8	5.68	Montevideo f.	76	28	49.6	8.28
Waukegan	79	29	55.2	5.83	Morris ¹	77	30	49.9	9.91
Waltham				5.81	Northfield f.	71	32	49.6	
Wellesley	78	33	52.4	5.68	Ortonville f.				5.94
Westborough f.	84	28	55.9	5.59	Pine River a ¹	71	28	45.7	5.64
Williamstown ¹	78	31	53.8	5.43	Pokegama Falls ¹	75	22	44.6	5.12
Worcester				5.32	Princeton ¹	76	29	51.2	5.99
	83	34	55.8	6.34	Redwood Falls f.				7.06
<i>Michigan.</i>					Rolling Green f.	71	31	49.2	7.30
Adrian	86	32	56.2	9.18	Saint Charles f.	73	28	50.5	6.81
Albion ¹	80	34	56.9	7.91	Saint Olof ¹	76	26	48.7	6.97
Allegan	80	33	54.7	7.12	Sheldon ²				6.81
Alma	79	31	52.4	5.39	<i>Mississippi.</i>				
Ann Arbor	82	33	56.3	5.59	Aberdeen f.	92	40	72.6	2.57
Arbela	85	40	53.9	5.05	Agricultural College	90	46	71.6	2.06
Ball Mountain	80	29	53.5	6.17	Batesville f.	88	46	70.2	4.33
Bear Lake	73	28	51.6	3.20	Booneville f.				4.40
Bellaire	78	39	54.7	2.30	Brookhaven f.	93	40	72.4	2.67
Benton Harbor	85	36	53.4	8.15	Canton f.	86	48	71.7	3.45
Benzonia	75	32	51.5	4.02	Columbus a ¹				4.50
Berlin ¹	85	32	54.2	6.02	Columbus b ¹	98	40	72.9	3.45
Berrien Springs a ¹	79	40	58.0	9.14	Corinth f.	88	45	68.9	5.64
Berrien Springs b.				8.91	Edwards f.	92	48	73.4	2.66
Birch Run	86	32	55.0	4.28	Enterprise f.	90	45	71.0	3.15
Birmingham ¹	84	35	55.9	5.04	Fayette f.	90	48	72.8	2.52
Bronson	81	33	55.4	8.80	Greenville	88	50	72.4	3.23
Brown City	85	33	53.6	4.92	Hattiesburg a ¹	93	42	72.2	3.21
Caldwell	75	25	50.4	4.24	Hazlehurst f.	91	43	71.8	1.92
Calumet	72	29	45.3	3.19	Hernando f.	89	44	70.6	4.46
Charlevoix	74	32	49.4	3.82	Holly Springs f.	88	46	69.4	3.93
Clinton	85	31	56.0	9.43	Jackson f.	92	46	73.6	1.90
Concord	83	31	54.5	7.40	Kosciusko f.	90	43	70.8	1.90
Crystal Falls	75	25	46.3	3.36	Lake f.	90	46	72.0	2.06
Evart ¹	79	28	49.9	4.19	Logtown f.	87	49	72.8	1.72
Fairview	78	32	54.4	7.13	Louisville f.	92	40	70.2	4.00
Fitchburg	84	28	54.6	7.37	Macon f.	94	46	73.5	1.10
Flint	82	32	53.3	4.67	Moss Point f.	90	50	73.4	3.21
Freemont	78	31	52.8	4.07	Natches f.	91	48	73.6	3.28
Gaylord	77	28	48.1	3.44	Okolona f.	94	40	70.4	7.88
Gladwin	80	30	55.9	2.72	Pontotoc f.	88	48	68.3	6.25
Grape	83	33	56.9	9.07	Port Gibson f.	93	41	72.7	
Grayling	80	26	50.8	3.65	Ship Island f.	89	54	76.2	1.23
Hanover	78	32	55.1	9.75	Vaiden f.	95	44	72.9	2.23
Harbor Springs	79	29	50.1	3.25	Washington f.	92	46	73.0	3.89
Harrisville	81	30	47.7	3.50	Water Valley ¹	95	50	71.2	7.41
Hart	72	27	50.5	7.25	Waynesborough a ¹	90	45	70.4	2.35
Hastings	81	35	54.4	7.33	Waynesborough b ¹	92	44	70.8	2.35

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
<i>Mississippi—Cont'd.</i>					<i>Nebraska—Con.</i>				
Yazoo City f.	°	°	°	Ins.	Franklin	°	°	°	Ins.
<i>Missouri.</i>				2.34	Fremont ¹	84	32		6.28
Adrian ¹	83	28	55.9	9.53	Geneva	81	38	54.0	8.37
Appleton City f.	88	36	62.8	9.72	Genoa ¹	75	35	52.2	6.01
Bethany ¹		40	59.0	10.30	Gering ¹	82	29	48.3	3.82
Boonville f.				14.86	Grand Island ¹	96	32	56.3	5.61
Bruneau ¹	83	37	59.1	7.55	Grant				3.84
Cape Girardeau f.				3.89	Haigler ¹	91	30	52.3	4.70
Carrollton f.	80	38	60.0	10.03	Hartington f.	86	30	51.4	7.48
Centerville				9.69	Harvard ¹	80	35	52.9	7.08
Chamais				7.00	Hastings ¹	78	38	54.1	6.00
Chillicothe	88	38	60.8	8.59	Hayes Centre ¹	78	40	53.4	7.64
Clinton ¹	79	40	60.0	10.42	Hebron ¹	80	39	54.6	7.64
Conception ¹	80	35	57.0	11.21	Holdrege ¹		38	53.8	4.98
Concord ¹	82			6.70	Imperial ¹	83	35	53.4	4.25
Darksville f.	82	36	61.0	7.80	Kennedy ¹	79	33	49.0	5.60
Dunnegan				11.81	Kimball f.	84	28	50.0	2.82
East Lynne ¹	83	40	61.4	8.50	Lexington f.	90	25	51.7	6.55
Eldon ¹	84	40	59.6	9.91	Lincoln ¹	76	36	54.0	9.75
Excelsior Springs ¹	83	39	58.1	10.82	Marquette ¹	82	34		6.11
Fayette	86	38	62.2	9.42	Minden ¹	82	36	51.6	6.98
Fox Creek ¹	84	42	62.6	9.78	Mullen ¹	98	30	48.9	3.26
Fulton				10.95	Nesbit				4.21
Galt				12.57	Norfolk ¹	78	32	50.4	5.95
Gordonville ¹	82	45	65.9	5.56	North Loup ¹	89	33	50.9	5.04
Harris ¹	79	38	61.8	10.10	Oakdale ¹	81	32	50.2	6.35
Hermann ¹	84	43	62.9	8.84	O'Neill ¹	86	34	51.1	4.05
Ironton				9.50	Orleans ¹	82	38	55.5	5.18
Jefferson City f.	88	40	63.0	11.03	Ough b f.				3.69
Jerome f.				11.14	Palmer ¹	80	32	48.9	5.40
Kidder	82	34	59.4	7.47	Plattsmouth f.				14.72
Lamar f.	86	38	62.9	9.51	Precept ¹	85	34	52.9	6.61
Lamonte f.				10.13	Ravenna	85	34	52.9	4.77
Langdon	84	39	56.8	10.81	Schuyler ¹	81	36	57.5	6.62
Lebanon	84	37	61.8	9.67	Seward ¹	82	41	55.4	7.85
Liberty	80	39	63.0	7.27	Springview	84	31	48.9	6.04
Linneus				10.55	Stanton				6.11
Louisiana Bridge f.				8.50	Superior ¹	85	34	51.4	4.50
Mansfield				11.07	Syracuse ¹	78	38	56.0	8.73
Marble Hill	81	41	64.6		Tecumseh f.	80	40	57.5	8.15
Marshall f.	84	38	63.0	10.32	Theodore ¹	78	38	54.6	8.80
Mexico f.	91	30	62.0	8.77	Turlington ¹	82	41	58.3	
Mine La Motte	84	42	64.4	9.48	Wallace ¹	86	33	52.5	3.43
Neosho	89	34	64.8	12.72	West Hill ¹	76	35	53.4	4.86
New Haven ¹	88	40	63.3	10.60	West Point f.	77	32	51.7	8.20
Oak Ridge ¹	88	46	66.2	5.10	Whitman ¹	80	37	50.2	3.11
Oregon ¹	88	37	57.8	7.17	Wilcox ¹				5.51
Oregon b ¹	84	37	56.8	10.55	Wilcox b ¹	74	36	54.7	
Phillipsburgh				6.32	York ¹	81	37	53.3	6.61
Pickering ¹	75	35	52.6	8.59	<i>Nevada.</i>				
Platte River ¹	86	41	57.6	8.11	Austin	77	23	48.6	1.90
Princeton ¹	82	40	56.7	11.40	Battle Mountain ¹	82	35	57.0	2.35
Rea ¹	80	30	57.7	6.23	Bellville ¹	100	32	56.7	0.17
Saint Joseph f.				5.41	Belmont	80	20	47.1	1.11
Saint Louis a	86	38	61.8	7.27	Beowawe ¹	84	33	56.2	2.00
Saint Louis b				6.81	Browns ¹	90	42	66.2	0.10
Sedalia	84	38	62.2	10.47	Carlin ¹	82	30	50.1	0.00
Shelbina				9.20	Carson City ¹	86	24	54.6	0.54
Stanberry				8.96	Cranes Ranch				3.25
Steelville				9.30	Downeyville	97	28	55.0	1.57
Stellada f.	85	38	62.0	10.13	Elko ¹	80	30	56.2	0.00
Warrensburg ¹	82	40	62.0	10.00	Ely	78	13	41.4	1.10
Warrenton	86	37	62.0	9.38	Empire Ranch f.	96	29	58.6	1.25
Withers Mills ¹				8.95	Fenelon ¹	93	38	55.3	0.95
Zeitonia				6.99	Genoa	86	27	46.8	0.30
<i>Montana.</i>					Goldsand ¹	88	32	58.1	1.30
Boulder Valley f.	84	20	44.4	0.62	Halleck ¹	86	30	51.5	1.74
Bozeman f.	91	18	49.5	1.45	Hawthorne a ¹	85	32	61.3	0.45
Camp Poplar River.	89	21	46.0	1.12	Hawthorne b	88	31	57.2	0.40
Choteau f.	89	18	45.6	1.66	Hot Springs ¹	90	30	60.7	0.08
Dearborn Canyon f.	78	18	42.5	2.69	Humboldt ¹	83	32	57.9	0.45
Deer Lodge City f.	86	21	47.8	0.69	Lewers Ranch	84	26	53.1	1.69
Fort Keogh	90	24	49.0	1.52	Lovelock ¹	98	32	62.0	0.00
Fort Logan f.	82	13	41.0	0.38	McDermitt	92	30	61.3	1.22
Fort Missoula	86	25	49.7	1.37	Mill City ¹	86	33	56.2	
Great Falls f.	90	24	53.7	0.29	Monitors Ranch	80	24	49.2	0.95
Horr ¹	83	21	46.8		Palisade ¹	85	35	54.9	1.00
Martinsdale f.	84	17	47.8	1.71	Palmetto	86	22	50.3	0.88
Powder River f.	81	26	48.6	1.94	Pioche	90	25	56.0	0.25
Virginia City f.	68	20	39.6	0.54	Reno ¹	80	35	59.2	0.00
<i>Nebraska.</i>					Reno State Univ ¹	85	25	58.3	0.22
Agee ¹	72	30	50.9	6.37	Saint Clair	89	31	58.7	0.35
Albion	79	32	50.8	4.91	South Camp f.	81	20	51.7	1.00
Alliance f.	85	28	48.1	3.19	Stofel	80	18	46.7	4.04
Ansley ¹	96	29	51.7	6.90	Sunnyside	90	20	52.2	1.39
Arberville ¹	85	33	51.6	6.72	Tecoma ¹	80	32	57.3	1.68
Auburn a ¹	84	40	56.4	11.40	Toano ¹	83	30	53.5	1.30
Bassett ¹	81	32	49.2	5.80	Tuscarora f.	92	21	51.7	1.44
Beatrice f.	78	33	53.2	9.09	Tybo	84	28	53.7	1.06
Bookwalter				9.83	Verdi ¹	88	30	52.3	0.60
Brandon				4.00	Virginia City	81	26	53.2	1.24
Burwell ¹	86	36	52.8	4.71	Wabaska ¹	90	36	62.4	0.48
Cornlea				5.19	Wadsworth ¹	96	30	52.0	0.00
Craigton f.	81	30	49.1	4.83	Wells ¹	80	30	51.5	0.60
Crete ¹	78	35	53.2	12.13	Winnemucca ¹	83	32	54.5	0.00
Calbertson a f.				3.99	<i>New Hampshire.</i>				
David City ¹	78	36	51.5	6.90	Antrim				6.83
De Soto ¹	80	37	55.1	8.49	Belmont				4.64
Dunning ¹	81	33	52.4		Berlin Mills	81	19	49.6	3.93
Ericson ¹	84	34	51.2	4.12	Brookline				4.74
Fairbury				9.79	Concord a	78	27	53.8	6.24
Fairfield ¹	83	33	53.6	7.02	East Canterbury	79	32	53.2	6.57
Falls City ¹	79	44	59.8	7.14	Grafton ¹	75	22		6.12
Fort Robinson	83	27	48.9	5.02	Groveton ¹	84	32	50.9	3.27
Fort Sidney	83	28	50.2	3.36	Hanover ¹	78	26	52.7	

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
<i>N. Hampshire—Con.</i>					<i>New York—Cont'd.</i>				
Lakeport	81	32	55.3	6.26	Cherry Creek	82	32	49.6	6.66
Littleton	79	26	55.3	5.94	Constableville	82	34	52.4	7.82
Manchester	83	27	55.6	5.33	Cooperstown	82	37	53.6	7.96
Mine Falls	80	24	54.4	5.14	Cortland	82	37	53.6	7.96
Nashua	80	24	54.4	5.14	Dunkirk	82	37	53.6	7.96
Newton	80	24	54.4	5.14	Eden Centre	82	37	53.6	7.96
North Conway	80	24	54.4	5.14	Elmira	82	37	53.6	7.96
Pennichuck Station	80	24	54.4	5.14	Factoryville	82	37	53.6	7.96
Peterborough	80	24	54.4	5.14	Fleming	82	37	53.6	7.96
Plymouth	80	24	54.4	5.14	Fort Niagara	82	37	53.6	7.96
Stratford	80	24	54.4	5.14	Galway	82	37	53.6	7.96
Walpole	80	24	54.4	5.14	Geneva	82	37	53.6	7.96
West Milan	80	24	54.4	5.14	Glens Falls	82	37	53.6	7.96
Wiers Bridge	80	24	54.4	5.14	Gloversville	82	37	53.6	7.96
Wolfsborough	80	24	54.4	5.14	Hammondsport	82	37	53.6	7.96
<i>New Jersey.</i>					Hess Road Stat'n	82	37	53.6	7.96
Allaire	86	39	59.6	3.26	Honeybrook	82	37	53.6	7.96
Asbury Park	86	39	59.6	3.26	Humphrey	82	37	53.6	7.96
Bayonne	86	39	59.6	3.26	Jamestown	82	37	53.6	7.96
Belleville	86	39	59.6	3.26	Kings Station	82	37	53.6	7.96
Belvidere	86	39	59.6	3.26	Lebanon Springs	82	37	53.6	7.96
Beverly	86	39	59.6	3.26	Liberty	82	37	53.6	7.96
Bivalve	86	39	59.6	3.26	Little Valley	82	37	53.6	7.96
Blairstown	86	39	59.6	3.26	Lockport	82	37	53.6	7.96
Bridgeton	86	39	59.6	3.26	Locust Grove	82	37	53.6	7.96
Bridgeton b	86	39	59.6	3.26	Lowville	82	37	53.6	7.96
Camden	86	39	59.6	3.26	Lyndonville	82	37	53.6	7.96
Cape May C. H.	86	39	59.6	3.26	McLean	82	37	53.6	7.96
Deckertown	86	39	59.6	3.26	Madison Barracks	82	37	53.6	7.96
Dover	86	39	59.6	3.26	Malone	82	37	53.6	7.96
Egg Harbor City	86	39	59.6	3.26	Marshall	82	37	53.6	7.96
Elizabeth	86	39	59.6	3.26	Middletown	82	37	53.6	7.96
Franklinville	86	39	59.6	3.26	Mount Morris	82	37	53.6	7.96
Freehold	86	39	59.6	3.26	Newark Valley	82	37	53.6	7.96
Gillette	86	39	59.6	3.26	New Liabon	82	37	53.6	7.96
Hanover	86	39	59.6	3.26	N'th Hammond	82	37	53.6	7.96
Highland Park	86	39	59.6	3.26	Number Four	82	37	53.6	7.96
Imlaystown	86	39	59.6	3.26	Oxford	82	37	53.6	7.96
Junction	86	39	59.6	3.26	Palermo	82	37	53.6	7.96
Lambertville	86	39	59.6	3.26	Perry City	82	37	53.6	7.96
Locktown	86	39	59.6	3.26	Plattsburgh B'ks	82	37	53.6	7.96
Moorestown	86	39	59.6	3.26	Potsdam	82	37	53.6	7.96
Mount Holly	86	39	59.6	3.26	Poughkeepsie	82	37	53.6	7.96
Mount Pleasant	86	39	59.6	3.26	Quaker Street	82	37	53.6	7.96
Newark a	86	39	59.6	3.26	Romulus	82	37	53.6	7.96
New Brunswick a	86	39	59.6	3.26	Schodack Depot	82	37	53.6	7.96
New Brunswick b	86	39	59.6	3.26	Setauket	82	37	53.6	7.96
Newton	86	39	59.6	3.26	South Canisteo	82	37	53.6	7.96
Ocean City	86	39	59.6	3.26	South Kortright	82	37	53.6	7.96
Oceanic	86	39	59.6	3.26	Turin	82	37	53.6	7.96
Paterson	86	39	59.6	3.26	Utica	82	37	53.6	7.96
Rancocas	86	39	59.6	3.26	Wappingers Falls	82	37	53.6	7.96
Readington	86	39	59.6	3.26	Watkins	82	37	53.6	7.96
South Orange	86	39	59.6	3.26	West Chazy	82	37	53.6	7.96
Tenafly	86	39	59.6	3.26	West Point	82	37	53.6	7.96
Trenton	86	39	59.6	3.26	White Plains	82	37	53.6	7.96
Vineland	86	39	59.6	3.26	Willets Point	82	37	53.6	7.96
Whiting	86	39	59.6	3.26	<i>North Carolina.</i>				
Woodbine	86	39	59.6	3.26	Asheville	86	39	59.6	3.26
<i>New Mexico.</i>					Bakersville	86	39	59.6	3.26
Albany	86	39	59.6	3.26	Bryson City	86	39	59.6	3.26
Albuquerque	86	39	59.6	3.26	Chapel Hill	86	39	59.6	3.26
Bloomfield	86	39	59.6	3.26	Columbus	86	39	59.6	3.26
Coolidge	86	39	59.6	3.26	Concord	86	39	59.6	3.26
Deming	86	39	59.6	3.26	Currituck Inlet	86	39	59.6	3.26
Dulce	86	39	59.6	3.26	Douglas	86	39	59.6	3.26
East Las Vegas	86	39	59.6	3.26	Fayetteville	86	39	59.6	3.26
Embudo	86	39	59.6	3.26	Goldsborough	86	39	59.6	3.26
Estalinas Springs	86	39	59.6	3.26	Greensborough	86	39	59.6	3.26
Folsom	86	39	59.6	3.26	Horse Cove	86	39	59.6	3.26
Fort Bayard	86	39	59.6	3.26	Lenoir	86	39	59.6	3.26
Fort Wingate	86	39	59.6	3.26	Lillington	86	39	59.6	3.26
Gallinas Spring	86	39	59.6	3.26	Linnville	86	39	59.6	3.26
Halls Peak	86	39	59.6	3.26	Littleton	86	39	59.6	3.26
Hillsborough	86	39	59.6	3.26	Louisburgh	86	39	59.6	3.26
La Luz	86	39	59.6	3.26	Lumberton	86	39	59.6	3.26
Lordsburg	86	39	59.6	3.26	Marion	86	39	59.6	3.26
Los Lunas	86	39	59.6	3.26	Morganton	86	39	59.6	3.26
Monero	86	39	59.6	3.26	Mount Airy	86	39	59.6	3.26
Olito	86	39	59.6	3.26	Mount Pleasant	86	39	59.6	3.26
Pojunaque	86	39	59.6	3.26	Murphy	86	39	59.6	3.26
Red Canon	86	39	59.6	3.26	New Bern	86	39	59.6	3.26
Socorro	86	39	59.6	3.26	Oak Ridge	86	39	59.6	3.26
Springer	86	39	59.6	3.26	Pittsborough	86	39	59.6	3.26
Taos	86	39	59.6	3.26	Salisbury	86	39	59.6	3.26
<i>New York.</i>					Saxton	86	39	59.6	3.26
Adams Centre	86	39	59.6	3.26	Smithfield	86	39	59.6	3.26
Addison	86	39	59.6	3.26	Soapstone Mt	86	39	59.6	3.26
Akron	86	39	59.6	3.26	Southern Pines	86	39	59.6	3.26
Alfred Centre	86	39	59.6	3.26	Tarborough	86	39	59.6	3.26
Arcade	86	39	59.6	3.26	Wadeville	86	39	59.6	3.26
Attica	86	39	59.6	3.26	Weldon	86	39	59.6	3.26
An Sabie Forks	86	39	59.6	3.26	Willeyton	86	39	59.6	3.26
Avon	86	39	59.6	3.26	<i>North Dakota.</i>				
Baldwinsville	86	39	59.6	3.26	Ashley	86	39	59.6	3.26
Bedford	86	39	59.6	3.26	Bathgate	86	39	59.6	3.26
Bethlehem Centre	86	39	59.6	3.26					
Binghamton	86	39	59.6	3.26					
Bloods Depot	86	39	59.6	3.26					
Bolivar	86	39	59.6	3.26					
Brookport	86	39	59.6	3.26					
Brookfield	86	39	59.6	3.26					
Canaseraga	86	39	59.6	3.26					
Canton	86	39	59.6	3.26					
Chenango Forks	86	39	59.6	3.26					

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
<i>North Dakota—Cont.</i>					<i>Oklahoma—Cont'd.</i>				
Bottineau	79	23	46.4	0.35	Ponca	92	38	65.8	5.11
Carrington	75	21	45.1	1.01	Sac & Fox Agency	90	40	66.6	10.87
Churchs Ferry	70	24	45.5	1.87	<i>Oregon.</i>				
Dickinson	80	26	45.4	1.77	Albany a ¹	90	36	57.0	1.41
Ellendale	83	31	49.0	2.07	Albany b ¹	88	46	61.5	0.89
Fargo	78	27	46.0	3.88	Arlington	94	38	61.6	0.75
Forman	84	39	48.5	4.00	Ashland a ¹	83	34	58.4	0.90
Fort Stevenson	82	25	46.8	0.62	Ashland b	80	32	55.6	1.53
Fort Yates	78	28	49.2	1.47	Aurora	95	39	60.3	1.10
Gallatin	76	24	45.4	2.26	Aurora (near)	84	36	56.8	1.84
Grafton	76	22	45.4	2.85	Bandon	72	43	51.8	6.13
Grand Forks	75	25	48.4	2.42	Beulah	85	25	50.0	2.05
Grand Rapids	81	25	45.7	3.03	Brownsville	88	45	60.9	0.96
Hope	78	28	45.8	1.80	Burns	82	24	46.8	1.65
Jamestown	78	26	47.1	3.01	Canyon City	91	32	55.7	2.43
Lakota	72	19	43.2	1.71	Cascade Locks	82	40	60.4	2.18
Medora	95	20	48.6	1.46	Castroville	95	40	57.8	2.13
Milton	77	22	43.0	2.25	Corvallis a	88	32	55.0	0.45
Minot	77	23	43.0	0.61	Corvallis b	78	42	57.2	0.79
Minto	77	26	47.2	1.08	Crook	91	19	49.9	1.68
Napoleon	75	23	44.6	2.67	East Portland	91	34	55.0	1.79
Power	81	28	47.6	3.13	Eola	85	41	59.6	1.78
Saint John	72	24	43.5	1.10	Fife	84	22	47.6	0.91
Valley City	80	30	48.4	2.90	Forest Grove	88	34	56.0	1.90
Wahpeton	79	38	50.0	5.36	Gardiner	82	40	55.2	5.19
White Earth	88	13	42.3	0.63	Glenora	91	32	54.2	4.87
Wild Rice	77	27	47.0	4.72	Grants Pass	96	33	57.5	1.23
Woodbridge	84	19	46.5	1.03	Hardmann	90	34	53.0	2.08
<i>Ohio.</i>					Heppner	88	32	56.2	1.85
Akron	84	32	57.2	7.71	Hood River, near	82	34	55.6	0.75
Ashland	80	39	57.4	7.86	Hubbard	86	32	55.8	1.82
Ashley	85	39	57.4	5.55	Jacksonville	90	34	57.2	1.32
Athens	87	35	61.7	7.35	John Day Junction	87	33	55.2	2.23
Bangorville	84	35	55.0	7.10	Joseph	79	26	47.6	2.18
Bellevue	86	34	55.3	6.73	Joseph City	80	40	59.7	0.08
Bement	90	30	58.4	7.57	La Fayette	90	40	57.3	1.36
Caledonia	83	33	58.0	8.63	La Grande	80	31	53.0	2.60
Canton	88	33	58.0	8.39	Lakeview	90	26	53.9	2.04
Carrollton	88	28	58.0	4.85	Langlois	83	37	55.2	7.64
Celina	85	39	60.3	7.56	Leland	94	40	59.0	2.60
Circleville	83	33	58.0	4.35	Long Rock	82	34	55.6	1.77
Clarksville	87	38	60.3	4.32	McMinnville a	82	34	56.8	0.84
Cleveland	86	38	57.2	8.72	McMinnville b	89	40	58.2	0.75
Dayton	86	40	62.0	4.54	Monmouth	84	33	54.8	0.67
Ellsworth	89	33	58.0	10.42	Mount Angel	90	36	59.9	2.14
Elyria	86	34	57.3	6.62	Newberg	90	40	57.8	1.66
Findlay	86	34	58.0	7.83	New Bridge	92	32	57.0	2.02
Fostoria	85	35	58.0	7.83	Newport	80	40	54.0	3.41
Garettsville	85	32	55.2	7.50	Olex	93	29	56.5	0.90
Georgetown	91	38	62.1	5.90	Pendleton	86	42	57.3	1.60
Granville	88	31	59.0	5.57	Piedmont	88	52	52.8	1.68
Gratoot	84	36	60.0	5.59	Portland	92	44	60.2	1.03
Greenfield	82	34	58.5	3.59	Riddles	85	39	55.3	0.88
Greenville	82	39	61.3	8.64	Roseburg	87	34	57.3	1.24
Hanging Rock	90	37	61.3	3.54	Salem a	86	38	56.9	1.79
Harbor	87	33	55.3	9.51	Salem b	80	18	50.3	2.52
Hiram	84	33	55.3	8.37	Silverton	88	41	59.5	1.53
Jacksonborough	85	38	58.8	4.15	Siskiyou	85	33	53.1	1.80
Kenton	86	32	58.0	7.71	Springfield	89	42	59.6	1.23
Leipsic	88	35	60.6	10.16	The Dalles	89	38	60.4	0.67
Logan	90	34	62.5	4.03	Toledo	86	30	56.6	4.17
Lordstown	86	28	57.0	7.31	Vale	85	39	58.4	2.43
McArthur	87	33	63.2	4.18	Vernonia	88	34	54.3	1.24
Mansfield	87	33	63.2	8.70	West Fork	100	39	58.9	1.82
Marietta	87	38	63.3	5.50	<i>Pennsylvania.</i>				
Marietta b	87	30	57.7	6.99	Altoona	84	39	62.4	5.35
Marion	86	32	62.0	5.84	Aqueduct	88	46	62.5	6.03
McConnellsville	85	35	56.0	10.23	Bloomington	87	40	57.6	6.50
Montpelier	86	31	59.0	5.40	Blue Knob	88	32	57.1	6.44
New Alexandria	87	31	59.0	5.29	Brookville	87	36	60.1	7.17
New Comerstown	86	35	59.0	6.11	Brothers Lock	87	37	59.5	4.39
New Holland	88	35	60.4	6.05	Carlisle	87	36	60.1	5.97
North Lewisburgh	87	30	56.4	6.46	Clarion	85	39	59.5	5.07
Oberlin	86	35	60.3	4.63	Coatesville	90	30	53.5	8.30
O. S. University	85	30	57.2	6.95	Confience	85	39	59.5	6.12
Orangeville	86	38	61.1	7.90	Coopersburgh	90	30	53.5	5.74
Piqua	88	35	64.5	3.15	Corry	83	34	55.3	5.43
Pomeroy	85	38	61.1	7.90	Doylstown	83	34	55.3	3.78
Portsmouth a	90	40	63.5	6.03	Du Bois	83	31	51.6	5.79
Portsmouth b	90	40	63.5	6.03	Dyberry	85	36	58.4	5.12
Sidney	85	34	58.0	8.27	East Mach Chunk	83	40	59.4	4.53
Springborough	85	34	58.0	8.27	Edinborough	80	32	53.4	7.38
Tiffin	87	37	58.6	6.07	Emporium	87	34	57.6	6.33
Upper Sandusky	84	31	57.8	0.58	Ficks of Neshami	87	34	57.6	5.33
Van Wert	87	37	58.6	6.07	Frederick	80	38	57.4	4.95
Warren	83	32	55.3	8.39	Freeport	86	39	59.3	5.28
Wauseon	83	32	56.4	11.40	Girardville	88	33	59.2	5.32
Waverly	92	37	62.9	3.79	Hollidaysburgh	88	33	59.2	7.15
Waynesville	85	35	60.4	4.88	Honesdale	87	34	59.4	6.24
Westerville	83	35	59.1	5.68	Indiana	88	32	57.4	6.20
West Milton	87	40	62.1	7.27	Johnstown	91	36	60.1	6.67
Weymouth	86	28	57.0	6.75	Kane	85	30	53.2	9.39
Wooster	86	38	57.3	7.69	Kennett Square	85	46	62.5	6.63
Youngstown	87	34	58.9	7.27	Kilmer	86	38	60.5	4.25
Zanesville	87	43	67.8	4.95	Lancaster	86	38	60.5	4.25
<i>Oklahoma Ter.</i>					Lansdale	86	38	60.5	4.25
Anadarko	95	41	69.5	9.46					
Buffalo	92	42	64.0	5.56					
Burnet	93	37	66.4	12.64					
Fort Reno	90	40	67.0	7.37					
Fort Sill	96	37	68.8	7.20					
Gate City	91	38	60.4	4.89					
Guthrie	93	40	67.6	10.70					
Keokuk Falls	91	32	66.2	9.67					
Mangum	91	43	67.8	7.89					

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
Pennsylvania—Con.					South Dakota—Con.				
Lebanon ¹	85	36	59.0	5.14	Gary ¹	75	27	47.2	8.48
Le Roy ¹	82	32	55.0	4.96	Gettysburgh.....	.....	.....	.....	4.16
Lewisburgh ¹	83	30	57.3	5.14	Grand View ¹.....	.....	.....	.....	3.11
Ligonier ¹	83	33	58.3	2.06	Hitchcock ¹.....	.....	.....	.....	5.63
Lock Haven ¹	98	35	59.5	4.91	Hotch City ¹	89	28	49.8	3.76
Lock No. 4 ¹.....	.....	.....	.....	4.73	Kimball ¹	85	30	50.4	4.22
Mahoning ¹.....	.....	.....	.....	6.67	Macy ¹	78	15	43.4	7.34
McConnellsburgh ¹	84	34	60.6	5.97	Mellette ¹	78	30	49.5	4.84
Meadville ¹.....	.....	.....	.....	5.75	Midland ¹	92	28	53.1	2.88
New Castle ¹	89	39	61.1	6.31	Millbank ¹	79	28	49.6	8.09
Oil City ¹.....	.....	.....	.....	7.96	Mitchell ¹	82	30	49.0	6.71
Ottisville ¹.....	.....	.....	.....	5.44	Oelrichs ¹	85	19	48.1	2.67
Parkers Landing ¹.....	.....	.....	.....	9.06	Onida ¹	85	29	45.5	2.94
Philadelphia ¹	84	44	63.0	5.38	Parker ¹	81	29	50.6	3.49
Philadelphia ²	84	43	62.3	5.68	Parkston ¹	84	34	50.0	6.72
Philadelphia ³	84	43	62.3	5.68	Rosebud ¹	89	31	50.0	5.10
Phoenixville ¹	83	39	60.6	4.93	Saint Lawrence ¹	88	34	51.0	5.36
Pleasant Mount ¹.....	.....	.....	.....	7.30	Salem ¹	82	22	48.0	5.69
Point Pleasant ¹.....	.....	.....	.....	5.88	Sioux Falls ¹	80	30	49.4	8.22
Port Carbon ¹	87	37	60.8	5.42	Spaulding ¹	84	27	46.7	2.18
Pottstown ¹	88	43	61.5	7.59	Traverse ¹	74	30	53.2	4.70
Quakertown ¹	85	34	58.5	5.08	Tyndall ¹	82	31	50.8	5.41
Reading ¹	85	34	59.1	4.00	Vermillion ¹	76	30	51.4	6.85
Ridgway ¹.....	.....	.....	.....	7.83	Watertown ¹	76	35	48.3	8.84
Saegertown ¹	87	30	54.0	8.95	Webster ¹	81	26	48.7	5.64
Salem Corners ¹	82	34	55.5	7.65	Wentworth ¹	80	29	48.0	7.55
Saltsburgh ¹.....	.....	.....	.....	4.01	Wessington ¹	81	30	49.2	4.64
Seisholtzville ¹.....	.....	.....	.....	5.13	Whitewood ¹.....	.....	.....	.....	2.58
Selins Grove ¹	85	40	59.6	6.25	Wolsey ¹	80	32	48.3	6.11
Smithport ¹	90	29	54.6	5.81	Tennessee.				
Smiths Corners ¹.....	.....	.....	.....	5.81	Andersonville ¹	90	43	69.1	3.83
Somersett ¹	85	30	55.2	5.36	Arlington ¹	87	40	67.8	5.45
South Eaton ¹	82	36	56.4	5.49	Ashwood ¹	85	44	66.9	6.05
State College ¹	83	34	57.4	5.79	Austin ¹	88	43	69.1	5.23
Stoyestown ¹.....	.....	.....	.....	5.72	Bethel Springs ¹	88	52	66.4	6.36
Swarthmore ¹	82	40	60.8	5.00	Bolivar ¹	83	50	66.2	4.89
Uniontown ¹	88	40	63.2	6.48	Brownsville ¹	90	46	70.2	5.87
Warren ¹.....	.....	.....	.....	9.06	Charleston ¹.....	.....	.....	.....	4.55
Wellborough ¹	84	28	56.6	6.69	Clarksville ¹	86	42	66.2	4.79
West Chester ¹	84	40	60.5	6.37	Clinton ¹.....	.....	.....	.....	3.04
West Newton ¹.....	.....	.....	.....	4.35	Columbia ¹.....	.....	.....	.....	8.02
Westtown ¹	81	.....	.....	7.23	Covington ¹	84	46	67.4	7.24
Wilkes Barre ¹	88	34	59.9	5.89	Covington ²	92	45	71.9	.....
Wysox ¹	88	31	56.0	4.86	Dunlap ¹.....	.....	.....	.....	3.49
York ¹	86	35	60.7	4.10	Dyersburg ¹	89	46	69.0	6.62
Rhode Island.					Fayetteville ¹	88	46	68.3	5.36
Bristol ¹	76	37	53.5	4.40	Florence Station ¹	89	52	67.4	4.15
Kingston ¹	79	37	53.8	5.29	Franklin ¹	88	50	68.4	5.41
Kingston ²	76	38	53.7	6.09	Greenville ¹	83	40	63.1	3.83
Lonsdale ¹.....	.....	.....	.....	6.12	Hohenwald ¹	90	37	.....	5.66
Newport ¹	79	41	55.6	.....	Jacksboro ¹	85	40	63.2	3.52
Olneyville ¹	76	41	55.3	.....	Jackson ¹	86	46	67.8	4.78
Pawtucket ¹	79	43	58.2	5.72	Johnson City ¹	86	38	65.2	4.22
Providence ¹	81	39	57.9	6.07	Kingston ².....	.....	.....	.....	3.67
Providence ²	78	33	55.8	5.63	Landon ¹.....	.....	.....	.....	4.30
Providence ³	76	35	54.4	5.93	Lynnville ¹	86	44	66.2	8.64
South Carolina.					McMinnville ¹	85	50	66.8	5.98
Allendale ¹	93	48	73.0	2.73	Milan ¹	88	43	69.2	6.00
Anderson ¹.....	.....	.....	.....	2.15	Missionary Ridge ¹	88	53	66.2	.....
Batesburg ¹	92	47	71.4	2.97	Newport ¹	88	40	63.1	3.13
Belmont ¹	90	46	70.0	2.67	Nunnally ¹	85	48	67.3	4.88
Blackville ¹	92	47	73.8	6.51	Parksville ¹	88	42	66.9	3.44
Camden ¹.....	.....	.....	.....	1.61	Ridgely ¹	85	39	65.3	4.49
Cheraw ¹	94	44	71.2	2.96	Rockwood ¹.....	.....	.....	.....	4.27
Cheraw ².....	.....	.....	.....	3.62	Rogersville ¹	87	49	63.7	3.37
Emmigham ¹.....	.....	.....	.....	2.95	Rugby ¹	84	43	64.0	5.33
Florence ¹	93	45	73.4	3.33	Savannah ¹	88	50	69.9	6.24
Green Pond ¹	90	46	70.8	2.07	Sharp ¹	88	50	66.7	5.24
Greenville ¹	85	39	64.8	3.42	Springdale ¹	92	40	66.5	3.11
Greenville ²	90	48	69.5	2.77	Strawberry Plains ¹	88	43	.....	3.38
Hardeeville ¹	90	50	71.8	2.95	Sweet Water ¹	88	43	.....	4.90
Kingstree ¹	94	48	71.8	5.52	Waynesborough ¹	86	39	65.5	3.41
Mount Carmel ¹.....	.....	.....	.....	1.12	Texas.				
Nichols ¹.....	.....	.....	.....	3.70	Albany ¹	98	50	73.8	3.95
Port Royal ¹	86	56	72.8	2.40	Arthur City ¹.....	.....	.....	.....	15.69
Saint Georges ¹	90	48	71.0	4.35	Austin ¹	92	46	75.0	2.95
Saint Matthews ¹	91	49	72.2	3.45	Austin ²	90	53	75.4	.....
Saint Stephens ¹.....	.....	.....	.....	4.68	Belton ¹	99	42	77.0	2.02
Simpsonville ¹	94	42	68.7	1.44	Big Spring ¹.....	.....	.....	.....	2.14
Society Hill ¹	88	49	69.8	2.67	Brady ¹	96	45	72.5	3.51
Statesburg ¹	88	50	70.2	2.90	Brazoria ¹	87	48	74.3	0.54
Tillora Ferry ¹.....	.....	.....	.....	3.29	Brenham ¹	95	47	76.6	1.98
Trial ¹	88	49	70.4	8.67	Brownwood ¹	92	45	72.8	3.70
Waterloo ¹.....	.....	.....	.....	3.21	Burnet ¹	86	52	73.9	5.26
Winnabourgh ¹	92	45	70.2	3.17	Camp Eagle Pass ¹	107	50	82.8	2.60
Yorkville ¹	88	48	69.0	3.30	Camp P. Colorado ¹	98	40	71.5	0.00
South Dakota.					College Station ¹	91	46	75.4	3.54
Aberdeen ¹	78	34	49.0	3.72	Colorado ¹.....	.....	.....	.....	0.65
Bowdle ¹.....	.....	.....	.....	4.05	Columbia ¹	90	48	76.2	0.29
Britton ¹	86	27	46.0	3.62	Corsicana ¹	94	44	72.4	4.53
Brookings ¹	76	26	47.9	7.32	Cuero ¹	94	52	78.1	4.55
Carthage ¹.....	.....	.....	.....	6.10	Dallas ¹	94	42	73.1	.....
Castlewood ¹	81	23	47.0	4.44	Dallas ²	95	50	74.3	4.59
Clark ¹	79	28	48.0	7.58	Devine ¹	98	48	78.0	1.08
Cross ¹	76	18	43.6	6.09	Durham ¹.....	.....	.....	.....	2.56
De Smet ¹	80	25	47.0	6.48	Duval ¹	94	56	76.8	1.95
Elkton ¹	86	25	44.9	9.69	Eastland ¹	100	49	73.0	1.01
Faulkton ¹	82	28	47.9	3.19	Elmendorf ¹	98	44	76.5	1.98
Flandreau ¹	79	28	44.6	7.79	Floydada ¹	92	41	66.0	0.14
Forestburg ¹	80	30	49.4	6.29	Forestburg ²	94	42	69.4	11.77
Forest City ¹	88	33	54.1	.....	Fort Clark ¹	102	50	78.8	2.00
Fort Meade ¹	82	27	47.9	3.30	Fort Hancock ¹	98	32	67.7	0.00
Fort Randall ¹	87	30	51.0	4.25	Fort McIntosh ¹	105	56	82.6	1.65
Fort Sully ¹	88	32	50.6	2.65	Fort Ringgold ¹	109	55	84.0	1.15
Frankfort ¹	80	31	48.2	4.65					

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean.			Max.	Min.	Mean.	
<i>Texas—Cont'd.</i>					<i>Washington.</i>				
Fort Worth ¹	96	44	72.0	2.20	Aberdeen ¹	82	37	53.1	5.04
Fredericksburg ¹	91	45	72.7	3.30	Centerville ¹	90	29	57.3	1.08
Gainesville ¹	91	42	69.0	14.32	Chehalis ¹	96	32	55.8	1.99
Graham ¹.....	.....	.....	.....	6.25	Chelan ¹	86	32	58.4	3.13
Grape Vine ¹	95	48	72.6	8.38	Colfax ¹	87	31	54.1	2.01
Hallettsville ¹	94	49	72.9	7.50	Clyde ¹.....	.....	.....	.....	1.15
Hartley ¹	94	35	66.6	0.69	East Sound ¹	77	38	54.2	2.49
Hearne ¹	90	43	73.4	1.90	Ellensburg ¹	84	39	53.8	1.84
Houston ¹	90	45	74.7	0.04	Fort Simcoe ¹	89	44	61.1	1.42
Huntsville ¹	92	44	74.4	2.97	Fort Spokane ¹	90	31	57.1	1.94
Kent ¹.....	.....	.....	.....	T. T.	Fort Townsend ¹	73	36	52.4	2.00
Llano ¹	96	49	75.8	3.58	Lapush ¹	60	28	44.0	5.00
Longview ¹	96	42	74.2	3.97	Madrone ¹	85	35	55.8	1.38
Luling ¹	95	50	77.6	2.48	Moxee Valley ¹	88	33	63.5	1.74
Menardville ¹	95	54	71.5	3.71	Olga ¹	72	40	53.6	2.86
Mesquite ¹	92	42	71.0	6.83	Pomeroy ¹	81	37	58.0	1.10
Mountain Spring ¹	93	43	70.6	13.51	Rosalia ¹	82	32	52.0	2.33
Nacogdoches ¹	93	42	74.4	4.65	Seattle ¹	92	37	57.8	1.42
New Braunfels ¹	91	49	76.3	3.86	Sehomet ¹	79	39	53.8	3.28
New Ulm ¹	92	50	75.2	1.86	Tacoma ¹	90	37	55.1	1.98
Ochiltree ¹.....	.....	.....	.....	2.55	Union City ¹	88	37	56.1	2.57
Orange ¹	90	58	78.6	1.07	Vashon ¹	85	32	55.6	0.24
Paris ¹	92	41	71.1	13.55	Waterville ¹	83	27	52.0	3.36
Quanah ¹	102	45	69.2	3.10	Wilbur ¹	91	30	49.7	1.58
Red River City ¹.....	.....	.....	.....	12.12	<i>West Virginia.</i>				
Roby ¹	100	42	71.3	3.46	Beverly ¹	90	34	59.8	6.77
Round Rock ¹	92	50	75.8	3.02	Buckhannon a ¹.....	.....	.....	.....	6.11
San Antonio ¹	97	59	79.4	0.82	Buckhannon b ¹	87	35	61.6	.....
Sierra Blanca a ¹	92	38	69.2	.....	Charleston a ¹.....	.....	.....	.....	5.26
Sierra Blanca b ¹.....	.....	.....	.....	0.00	Charleston b ¹	92	40	65.2	5.10
Silver Falls ¹	97	40	70.0	0.70	Elkhorn ¹	86	36	62.2	7.07
Sulphur Springs ¹	97	41	73.8	2.85	Ellis ¹	84	32	59.5	6.00
Tyler ¹	93	44	73.1	2.94	Fairmont ¹.....	.....	.....	.....	4.90
Van Horn ¹.....	.....	.....	.....	0.00	Glenville ¹	85	39	61.7	5.85
Waco ¹	95	47	75.8	3.30	Grafton ¹	91	35	62.1	5.37
Weatherford ¹	95	40	71.1	4.25	Harpers Ferry ¹.....	.....	.....	.....	3.06
<i>Utah.</i>					Harrisville ¹	93	34	63.8	4.63
Blue Creek ¹	81	37	57.4	1.70	Hinton ¹.....	.....	.....	.....	3.36
Cisco ¹	92	32	60.1	0.82	Huntington ¹	88	38	63.1	3.39
Corinne ¹	85	37	58.4	2.25	Kingwood ¹	88	40	58.8	5.87
Deseret ¹	85	38	55.0	1.81	Martinsburg ¹	91	47	65.2	2.42
Fillmore ¹	92	32	58.1	0.20	Moorefield ¹	90	35	62.0	2.82
Green River ¹	94	41	65.6	2.83	Morgantown a ¹.....	.....	.....	.....	5.28
Grouse Creek ¹.....	.....	.....	.....	1.47	Morgantown b ¹	94	41	65.8	3.85
Kelton ¹	90	38	59.6	2.39	Parkersburg ¹	88	37	62.1	5.05
Lake Park ¹	81	36	54.6	2.42	Philippi ¹.....	.....	.....	.....	5.43
Levan ¹.....	.....	.....	.....	1.85	Piedmont ¹	87	38	60.6	5.43
Loa ¹	82	30	50.2	0.76	Pleasant Hill ¹	82	40	55.6	5.94
Logan ¹	80	27	52.2	3.00	Point Pleasant ¹.....	.....	.....	.....	4.55
Loose ¹	82	26	52.8	2.20	Rowlesburg ¹.....	.....	.....	.....	5.87
Manti ¹	97	24	52.8	0.95	Spencer ¹	96	40	69.7	5.00
Moab ¹	93	36	62.6	0.93	Tannery ¹	88	34	60.3	.....
Mount Carmel ¹	85	32	55.5	2.28	Weston ¹.....	.....	.....	.....	6.06
Ogden a ¹	85	35	56.7	0.89	Wheeling a ¹.....	.....	.....	.....	6.77
Ogden b ¹.....	.....	.....	.....	0.42	Wheeling b ¹	85	38	64.2	5.40
Park City ¹.....	.....	.....	.....	0.80	White Sulph. Springs ¹.....	.....	.....	.....	4.40
Parowan ¹	88a	27a	56.7a	0.83	<i>Wisconsin.</i>				
Promontory ¹	85	40	56.0	2.65	Amherst ¹	76	30	49.9	7.15
Provo City ¹.....	.....	.....	.....	60.4	Appleton ¹	76	29	51.6	5.88
Randolph ¹	80	22	44.8	1.78	Baraboo ¹	75	32	50.3	7.95
Richfield ¹	82a	28	55.6	0.75	Barron ¹	77	26	48.9	7.03
Saint George ¹	98	38	67.1	0.20	Bayfield ¹	74	24	43.9	4.90
Seefeld ¹	76	20	45.4	1.80	Beaver Dam ¹	70	32	51.5	7.86
Snowville ¹	90	39	63.2	2.30	Beloit ¹	76	34	53.4	7.05
Soldiers Summit ¹	79	19	44.5	2.50	Black River Falls ¹	79	28	51.3	7.61
Stockton ¹.....	.....	.....	.....	53.7	Butternut ¹	74	25	48.4	2.15
Terrace ¹	85	39	62.8	0.30	Cadiz ¹.....	.....	.....	.....	51.86
Thistle ¹	83	29	51.2	1.23*	Centralia ¹	79	28	50.2	4.57
<i>Vermont.</i>					Chippewa Falls ¹.....	.....	.....	.....	3.92
Brattleborough a ¹	84	28	54.2	4.81	Columbus ¹	87	23	52.6	4.29
Burlington ¹	90	32	55.0	4.28	Crandon ¹	79	23	48.3	4.39
Chelsea ¹	74	32	47.1	5.71	Delavan (near) ¹.....	.....	.....	.....	7.20
Cornwall ¹.....	.....	.....	.....	5.54	De Pere ¹	78	35	50.1	5.48
Enosburgh Falls ¹	85	23	52.1	4.40	Dodgeville ¹	73	32	51.2	10.02
Hartland ¹	80	21	51.2	7.26	Eau Claire ¹	77	30	52.2	6.15
Jacksonville ¹	77	23	50.6	8.73	Embarras ¹	76	36	53.0	9.95
Saxtons River ¹	81	22	53.5	7.18	Florence ¹	80	24	49.2	4.05
Simonsville ¹	88	29	51.7	.....	Fond du Lac ¹	77	32	52.3	6.86
Stratford ¹	75	28	48.2	7.00	Hammond ¹	72	23	50.2	6.71
Vernon ¹	76	34	54.6	6.69	Harvey ¹	76	31	52.5	8.24
Wells ¹	78	26	51.1	5.15	Hillsborough ¹	76	30	50.2	9.70
<i>Virginia.</i>					Hudson ¹	75	32	53.2	7.72
Abingdon ¹.....	.....	.....	.....	4.29	Janeville ¹	76	32	53.4	10.70
Ashland ¹	92	40	66.8	2.59	Juneau ¹	77	32	50.8	5.19
Avon ¹	94	38	64.6	3.35	Koepenick ¹	86	36	55.6	5.70
Bedford City ¹	88	45	64.2	1.95	Lancaster ¹	73	32	52.4	10.47
Big Stone Gap ¹	89	37	58.9	5.10	Madison ¹	73	33	52.4	6.98
Birdsneat ¹	90	50	66.7	3.55	Manitowoc ¹	77	30	51.0	5.65
Blacksburgh ¹	85	41	63.0	3.35	Meadow Valley ¹	81	31	51.2	7.11
Cape Charles ¹	87	45	66.0	3.60	Medford a ¹.....	.....	.....	.....	6.40
Charlottesville ¹	92	38	65.6	1.62	Medford b ¹	75	28	49.2	6.60
Christiansburg ¹.....	.....	.....	.....	3.51	Menomonee ¹	76	28	52.1	7.46
Clarksville ¹.....	.....	.....	.....	3.25	Mineral Point ¹	75	32	52.6	11.75
Dale Enterprise ¹	89	33	65.0	2.88	Neillsville ¹	74	29	50.6	7.29
Danville ¹.....	.....	.....	.....	3.08	New Holstein ¹	77	30	50.9	5.25
Lexington ¹	90	37	62.9	3.30	Oconomowoc ¹	75	33	52.4	7.44
Marion ¹	84	36	61.5	3.91	Oconto ¹	79	30	51.3	5.87
Nottaway C. H. ¹	93	38	65.8	4.02	Oscoda Mills ¹	74	28	50.1	8.10
Petersburg ¹	94	.....	.....	3.30	Oshkosh ¹	76	33	52.4	7.26
Richmond ¹	95	44	69.9	3.22	Peplin ¹.....	.....	.....	.....	6.31
Salem ¹	87	47	66.2	3.72	Peshigo ¹	78	29	50.8	5.20
Spottsville ¹	92	44	66.8	4.06	Phillips ¹	70	22	46.2	5.53
Standardsville ¹	91	43	64.9	2.20	Plover ¹	80	24	49.2	8.71
Staunton ¹	90	37	62.6	2.43	Portage ¹.....	.....	.....	.....	7.13
Woodstock ¹.....	.....	.....	.....	3.13	Prairie du Chien ¹	80	33	55.6	8.26

Meteorological record of voluntary observers—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean			Max.	Min.	Mean	
Wisconsin—Cont'd.	0	0	0	Ins.	Wyoming—Cont'd.	0	0	0	Ins.
Richland Centre†..	78	33	53.4	9.81	La Barge†	84	14	50.0	1.50
Shawano.....	75	28	50.6	5.83	Lander.....	81	11	48.0	4.25
Shell Lake.....	72	26	49.4	6.29	Laramie b.....	71	25	44.4	1.16
Sparta b†¹.....	84	32	53.0	6.55	Lusk†.....	80	25	46.2	3.23
Valley Junction†..	82	30	51.4	7.11	Saratoga†¹.....	74	23	48.1	2.65
Viroqua.....	75	31	51.1	8.17	Sundance.....	78	21	43.0	2.36
Watertown.....	77	33	52.6	5.95	Wheatland†.....	84	29	50.8	4.90
Waukesha†.....	77	33	52.6	5.95	Canada.....				
Westfield†.....	77	30	51.8	5.63	Fort Francis, Ont..	72	23	42.9	6.01
Weston†¹.....	76	30	50.2	7.66	Mexico.....				
Whitehall†.....	77	30	52.4	6.73	La Logia.....	94	48	74.6	T.
Wittenberg†¹.....	82	27	50.7	7.98	Leon de Aldamas..	94	55	74.6	0.05
Wyoming.....					Manatlan.....	84	60	74.8	0.00
Bitter Creek†.....	74	30	52.3	2.50	Mexico.....	86	51	67.2	0.66
Camp Pilot Butte..	80	24	48.0	1.82	Puebla.....	86	53	67.8	1.57
Casper†.....	92 ^d	31 ^d	53.4 ^d	0.36	Vera Cruz.....	90	72	82.3	1.80
Fort Fetterman.....	89	30	52.0	0.70	New Brunswick.....				
Fort Laramie†.....	83	32	49.1	4.32	Saint John.....				3.07
Fort McKinney.....	83	18	45.6	2.18	West Indies.....				
Fort Washakie.....	79	16	47.6	3.51	Hamilton, Ber¹.....	78	57	68.5	0.73
Fort Yellowstone..	73	16	42.1	2.06					

Received too late for publication in April, 1892.

Alabama.....				8.00	Texas.....				
Warrior†.....					Childress†¹.....	104	28	62.1	0.00
California.....				1.25	Corsicana a†.....	91 ^d	42 ^d	67.6 ^d	0.97
Campo†.....	59				Haskell†.....	92	40	66.0	0.31
Colorado.....					Panther†¹.....	96	46	65.9	1.24
Greenhorn† d.....	76	11	42.8	2.70	Quanah†.....	96	32	64.0	0.75
Lake.....				1.77	Round Rock†.....	92	46	72.4	0.64
T. S. Ranch†.....				1.61	Sulphur Springs†..	95 ^d	36 ^d	67.0 ^d	3.45
Indiana.....					Utah.....				
Valparaiso†.....	78	23	44.5	2.05	Scotfield†¹ m.....	70	14	40.7	0.00
Kansas.....					Virginia.....				
Belleville†.....	87 ¹	18 ¹	54.2 ¹	2.16	Hot Springs.....	74	19	48.3	.....
Mankato†.....	89	23	49.4	4.50	Warm Springs.....	62	22	42.0	.....
New England Ranch	92	23	50.4	0.67	Wisconsin.....				
Norton†.....	92	23	49.2	1.93	Juneau†.....	73	24	42.6	2.86
Missouri.....					Wyoming.....				
Centerville.....				8.85	Saratoga†¹.....	68	12	38.4	1.85
Chillicothe b†.....	78	28	51.7	6.52	Mexico.....				
Montana.....					Mazatlan.....	81	58	70.2	0.19
Powder River†.....	75 ^a	25 ^a	46.5 ^a	2.16	Mexico.....	84	50	66.2	0.38
South Carolina.....				2.52	Topolobampo.....	90	61	69.0	0.00
Cheraw b†.....					Vera Cruz.....	90	72	80.0	T.
South Dakota.....									
Tyndall†.....	83	18	45.3	6.38					

Reports received too late to be used in general discussion of weather for May, 1892.

Arizona.....				58.4	1.00	North Carolina.....				
Eagle Pass.....						Lexington†.....	91	40	67.0	3.10
Arkansas.....						North Dakota.....				
Mount Nebo†.....	86	37	64.4	14.20		Willow City†.....	76	23	46.1	0.50
California.....						Ohio.....				
Upper Mattole*¹..	93	40	57.2	5.80		Hassan*².....	88	42	58.6	5.95
Illinois.....						Wheeler†¹.....			55.2	10.20
Paris†.....	88	33	61.1	10.70		Oregon.....				
Shawneetown†.....				3.80		Eugene.....	85	38	57.0	0.79
Louisiana.....						Happy Valley†.....	88	27	50.6	1.76
Alexandria†.....	90	42	70.2	2.76		Pennsylvania.....				
Massachusetts.....						Grampian Hills¹..	84	34	56.5	7.13
Amherst¹.....	80	30	56.8	5.96		South Carolina.....				
Missouri.....						Spartanburg†.....	92	56	75.2	2.36
Harrisonville*†²..	81		58.3	7.27		South Dakota.....				
Rolla†.....	92	36		10.75		Alexandria†.....	96	29	49.8	8.08
Montana.....						Tennessee.....				
Cokedale*¹.....	91	20	51.1	1.90		Carthage†.....			5.41	
Glendive†.....	101	24	51.4	3.25		Johnsonville†.....			4.33	
New York.....						Texas.....				
Angelica†.....	86	29	53.0	7.31		Childress†¹.....	104	33	69.0	1.60
Arkwright¹.....	80	32	51.5	.....		Corsicana a†.....	94 ^f	45 ^f	74.6 ^f	5.57
Boyd's Corners*¹..	84	45	60.6	5.74		Odessa†.....	99	54	81.0	0.73
Brentwood.....	76	34	56.3	4.95		Panther†¹.....	101	52	72.4	2.72
Carmel.....	83	37	57.9	5.41		Temple†.....	88	46	72.5	4.50
Lyons¹.....	86	38	54.8	4.06		Wichita Falls†¹..	95 ^d	40	69.5 ^d	6.41
Lyon Mountain a¹..	75	30	47.4	.....		Utah.....				
Rondout†.....	80	38	55.6	5.39		Fort DuChesne.....	86	30	53.8	1.35
Saratoga¹.....	82	31	56.1	.....		Virginia.....				
S. E. Reservoir.....				5.84		Hot Springs.....	80	43	60.4	.....
						Warm Springs.....	77	25	53.6	.....

*Extreme of temperature from observed readings of dry thermometer.

† Weather Bureau instruments.

A numeral following the name of a station indicates the hours of observation from which the mean temperature was obtained, thus:

¹ Mean of 7 a. m. + 2 p. m. + 9 p. m. + 4.

² Mean of 6 a. m. + 8 p. m. + 2.

³ Mean of 7 a. m. + 7 p. m. + 2.

⁴ Mean of 6 a. m. + 6 p. m. + 2.

⁵ Mean of 7 a. m. + 2 p. m. + 2.

⁶ Mean from readings at various hours reduced to true daily mean by special tables.

⁷ Mean from hourly readings of thermograph.

The absence of a numeral indicates that the mean temperature has been obtained from daily readings of the maximum and minimum thermometers.

An Italic letter following the name of a station, as "Livingston a," "Livingston b," indicates that two or more observers, as the case may be, are reporting from the same station. A small Roman letter following the name of station indicates the number of days missing from the record, for instance, "a" denotes 14 days missing.

A small Roman letter in figure columns indicates the number of days missing from the record; example, "4" four days missing, etc.

Note.—The following changes have been made in names of stations: Childersburgh, Ala., changed to Wilsonville; Fremont, Kans., changed to Moreland; Gallinas, Tex., changed to Elmdorf; Doe Bay, Wash., changed to Olga.

Corrections—Georgia: "Adamsville" for February, March, and April, 1892, should read "Adairville." Kansas: "Fort Scott," from August, 1891, to January, 1892, inclusive, and "Fort Scott (a)," from February to April, 1892, inclusive, should read "Mar-matton." California: April, 1891, Spadra, mean temperature should read 60.1; June, 1891, Caliente, mean temperature should read 72.2; June, 1891, Elmira, mean temperature should read 70.5; June, 1891, Volcano Springs, mean temperature should read 88.7; July, 1891, Fort Mason, mean temperature should read 58.4; July, 1891, Modesto, mean temperature should read 81.8; July, 1891, Monterey, mean temperature should read 56.5.

Data from Canadian stations for the month of May, 1892.

Station.	Pressure.			Temperature.		Precipitation.		Prevailing direction of wind.
	Mean not reduced.	Mean reduced.	Departure from normal.	Mean.	Departure from normal.	Total.	Departure from normal.	
	Inches.	Inches.	Inches.	°	°	Inches.	Inches.	
Saint John, N. F.....	29.80	29.95	.....	39.7	-4.7	3.43	.....	ne.
Sydney, N. S.....	29.88	29.94	-0.05	42.6	-1.9	5.21	+0.88	sw.
Anticosti.....	29.90	29.93	-0.03	39.6	-1.1	3.77	.....	se.
Halifax, N. S.....	29.85	29.98	.....	46.2	-0.8	5.46	+0.74	n.
Grand Manan, N. B.....	29.91	29.96	.....	46.6	.....	4.21	+0.68	n.
Yarmouth, N. S.....	29.90	29.98	+0.02	46.6	-0.4	5.48	+1.45	sw.
Saint Andrews, N. B.....	29.88	29.93	.....	47.2	.....	1.81	-1.50	se.
Charlottetown, P. E. I.....	29.91	29.95	.....	45.0	.....	4.16	+1.01	nw.
Chatham, N. B.....	29.92	29.94	-0.04	46.8	+0.8	3.10	-0.80	w.
Father Point, Que.....	29.91	29.94	.....	43.4	-0.1	2.35	-0.08	e.
Quebec, Que.....	29.91	29.94	-0.01	48.6	-0.9	3.46	+0.34	n.
Montreal, Que.....	29.74	29.95	+0.01	52.0	-2.0	2.15	-0.93	n.
Rockliffe, Ont.....	29.41	29.97	-0.02	50.6	+1.1	0.94	-1.66	nw.
Kingston, Ont.....	29.62	29.94	-0.02	50.9	-2.1	3.46	+0.71	ne.
Toronto, Ont.....	29.57	29.95	-0.02	50.9	-2.1	3.49	+0.84	e.
White River, Ont.....	28.64	29.99	.....	46.0	.....	0.16	.....	n.
Port Stanley, Ont.....	29.31	29.95	.....	51.0	.....	7.24	+4.40	e.
Saugeen, Ont.....	29.23	29.95	-0.01	50.4	+0.4	3.37	-0.20	sw.
Parry Sound, Ont.....	29.25	29.95	+0.01	50.3	-0.2	1.96	-1.36	se.
Port Arthur, Ont.....	29.24	29.94	+0.03	46.0	-0.5	2.22	+0.04	ne.
Winnipeg, Man.....	29.16	29.96	+0.05	45.8	-4.2	1.85	-0.97	ne.
Minnedosa, Man.....	28.17	29.95	+0.09	43.4	-5.6	1.38	-0.26	nw.
Qu'Appelle, Assiniboia..	27.76	30.02	+0.14	43.0	-7.0	1.43	-0.09	se.
Medicine Hat, Assiniboia	27.67	29.97	+0.11	48.4	-7.1	1.03	-0.13	nw.
Swift Current, Assiniboia	27.44	30.02	+0.13	45.2	-5.8	3.16	+1.67	nw.
Calgary, Alberta.....	26.42	29.97	+0.09	43.8	-7.2	0.06	-1.43	w.
Prince Albert, Saskatch'n	28.48	30.00	.....	43.4	.....	1.49	.....	nw.
Edmonton, B. C.....	29.96	29.99	.....	51.6	-1.0	1.95	+1.16	se.
Stony Mountain, Man.....	.....	.....	.....	.....	.....	.....	.....	.....
Port Moody, B. C.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Albans, Man.....	.....	.....	.....	45.4	-5.4	1.52	-0.42	.....
Edmonton, Alberta.....	27.67	30.01	.....	46.8	.....	0.19	-1.41	se.
Battleford, Saskatchewan	28.26	29.99	.....	46.8	.....	0.71	.....	se.
Grindstone, Gulf St. L.....	.....	.....	.....	.....	.....	.....	.....	.....
Hamilton, Bermuda.....	.....	.....	.....	.....	.....	.....	.....	.....
Spences Bridge, B. C.....	29.12	29.93	.....	57.8	.....	0.62	.....	w.
Sandy Point, N. F.....	29.90	29.92	.....	42.6	.....	0.85	.....	ne.
Prince Albert, Feb., '92..	28.48	30.15	.....	5.4	.....	0.59	.....	e.
Prince Albert, Mar., '92..	28.47	30.06	.....	12.8	.....	0.27	.....	e.
Prince Albert, Apr., '92..	28.49	30.04	.....	33.0	.....	0.20	.....	se.

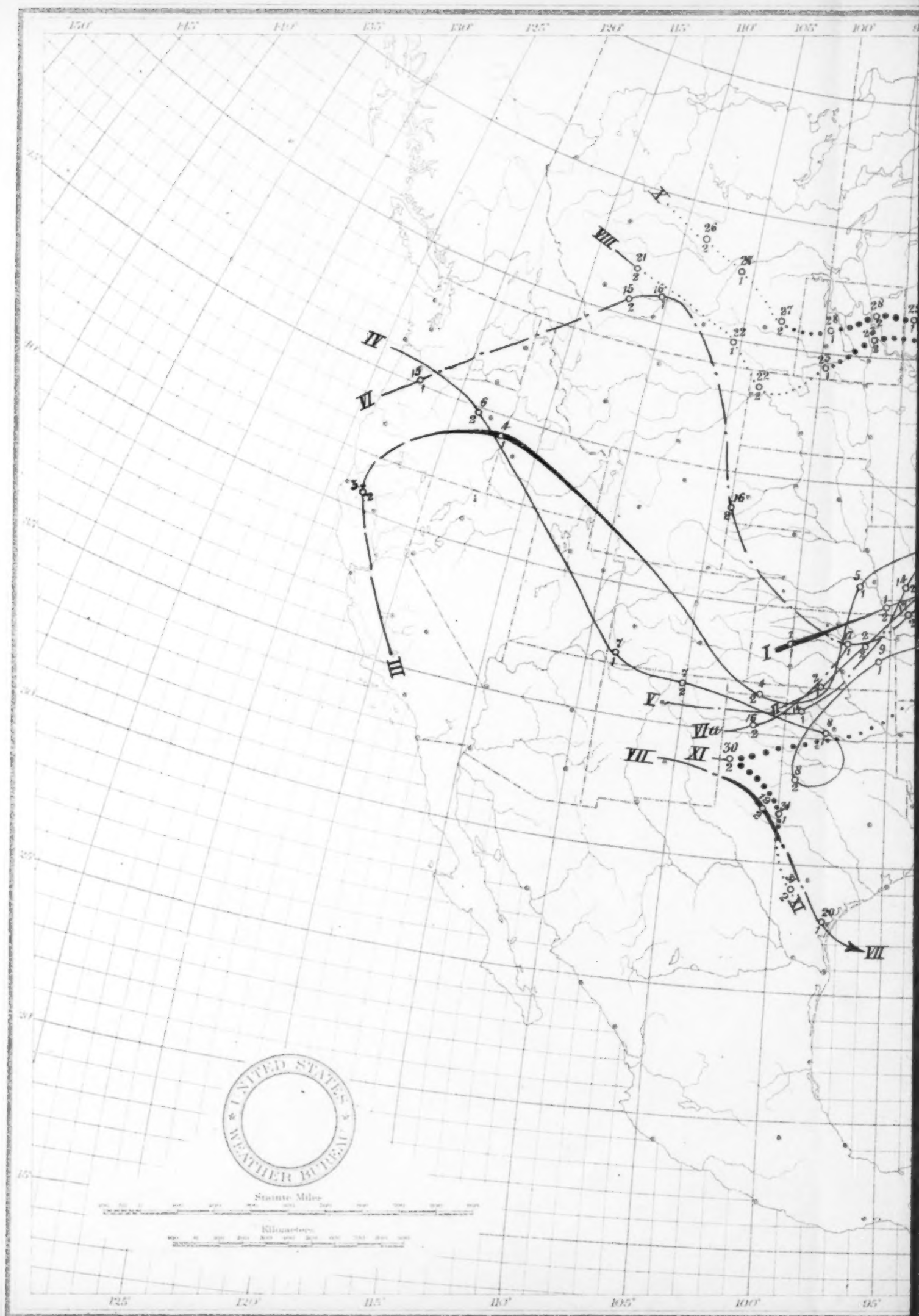
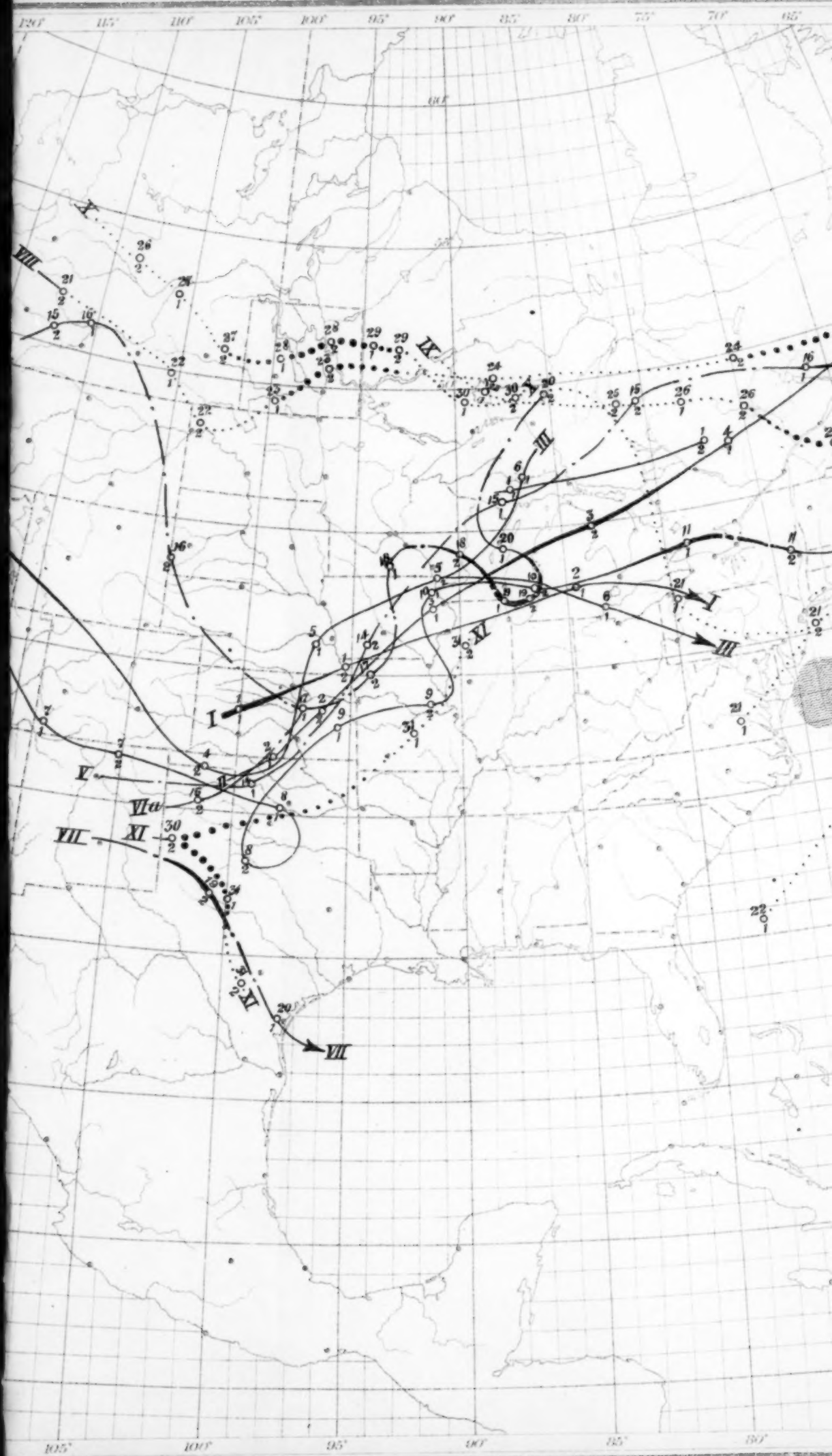
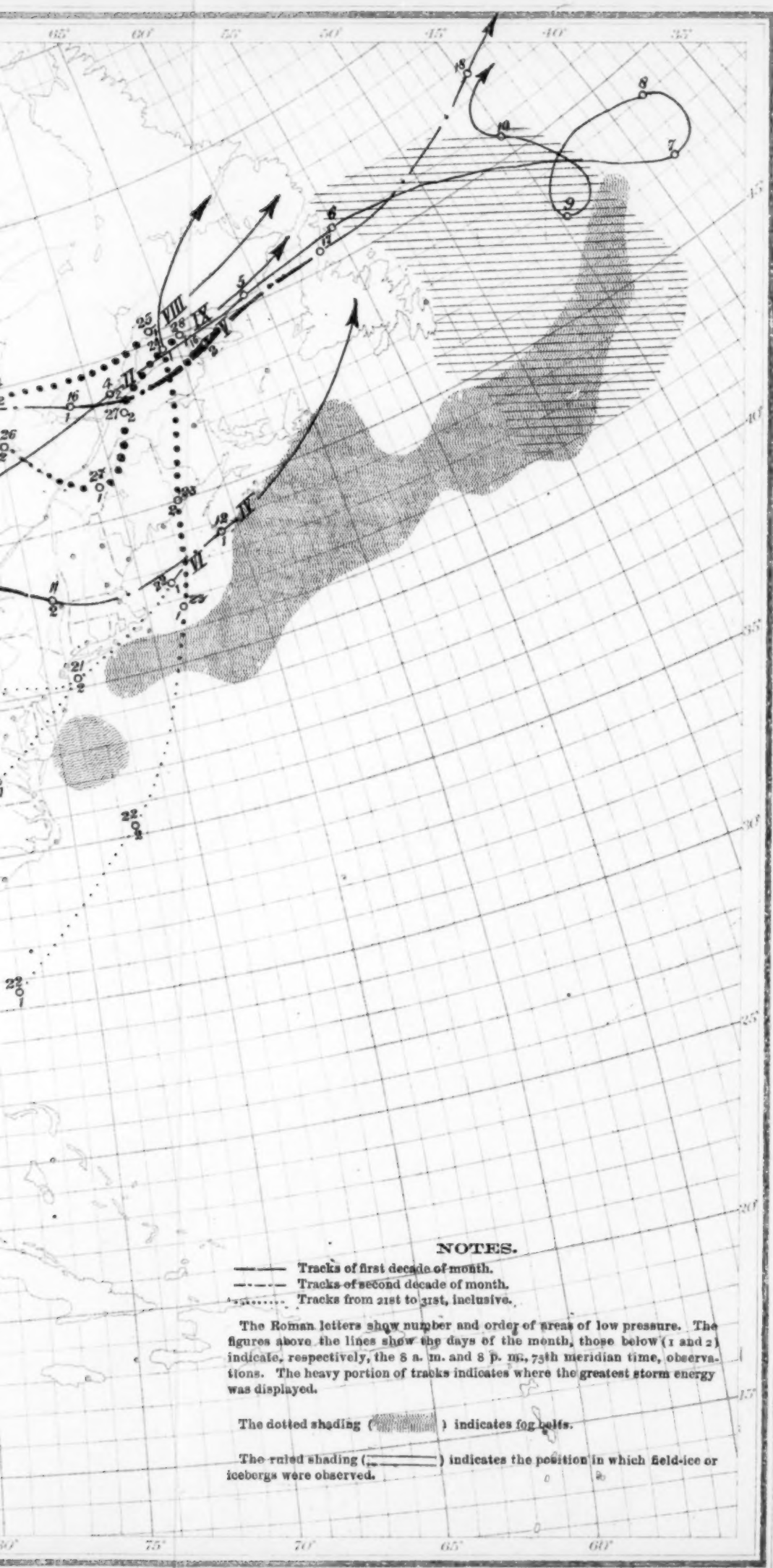


Chart I. Tracks of areas of Low Pressure. May, 1892.



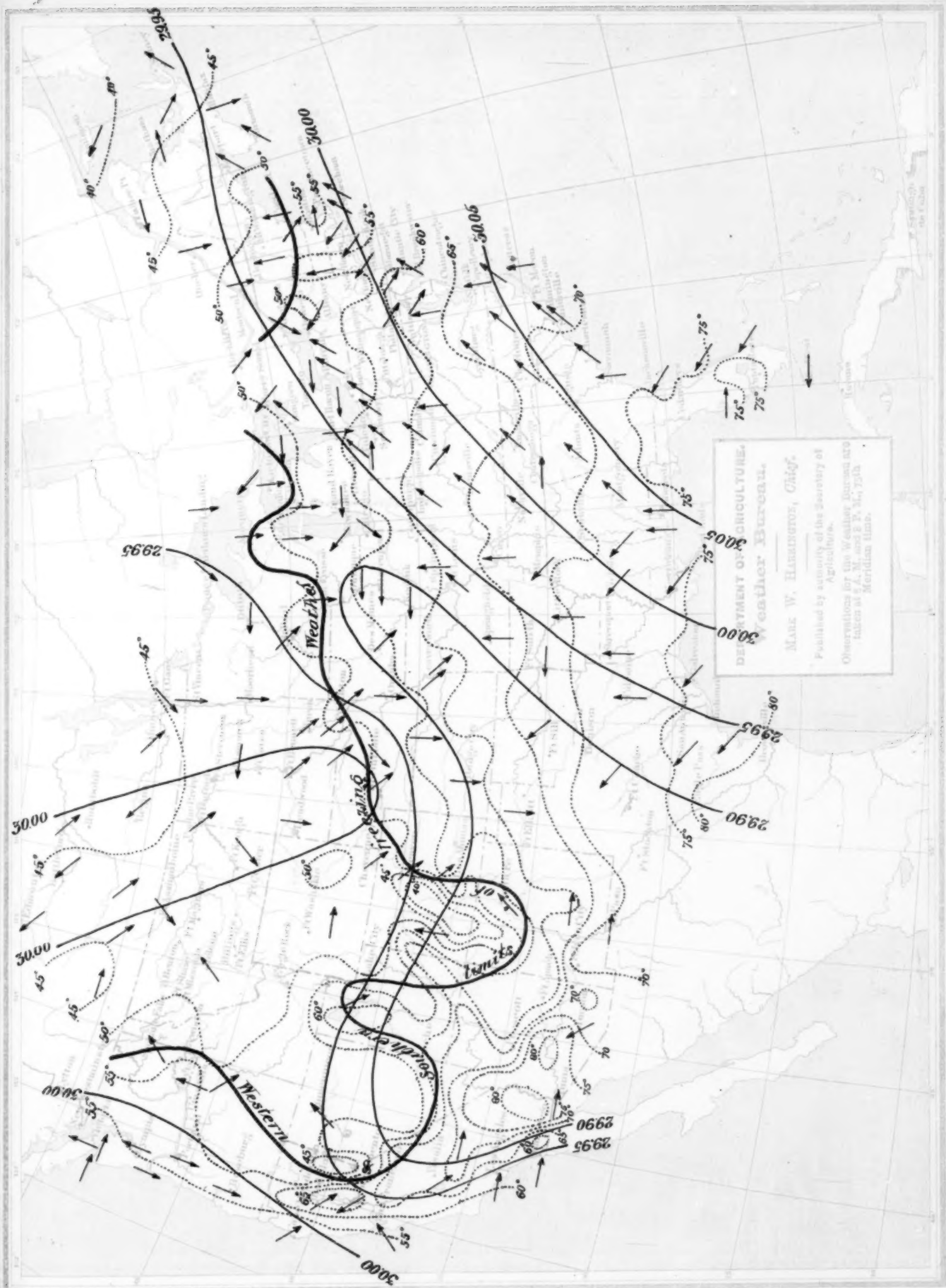


1845

1845

Chart II. Isobars, Isotherms, and Winds. May, 1892.

Form 106 F



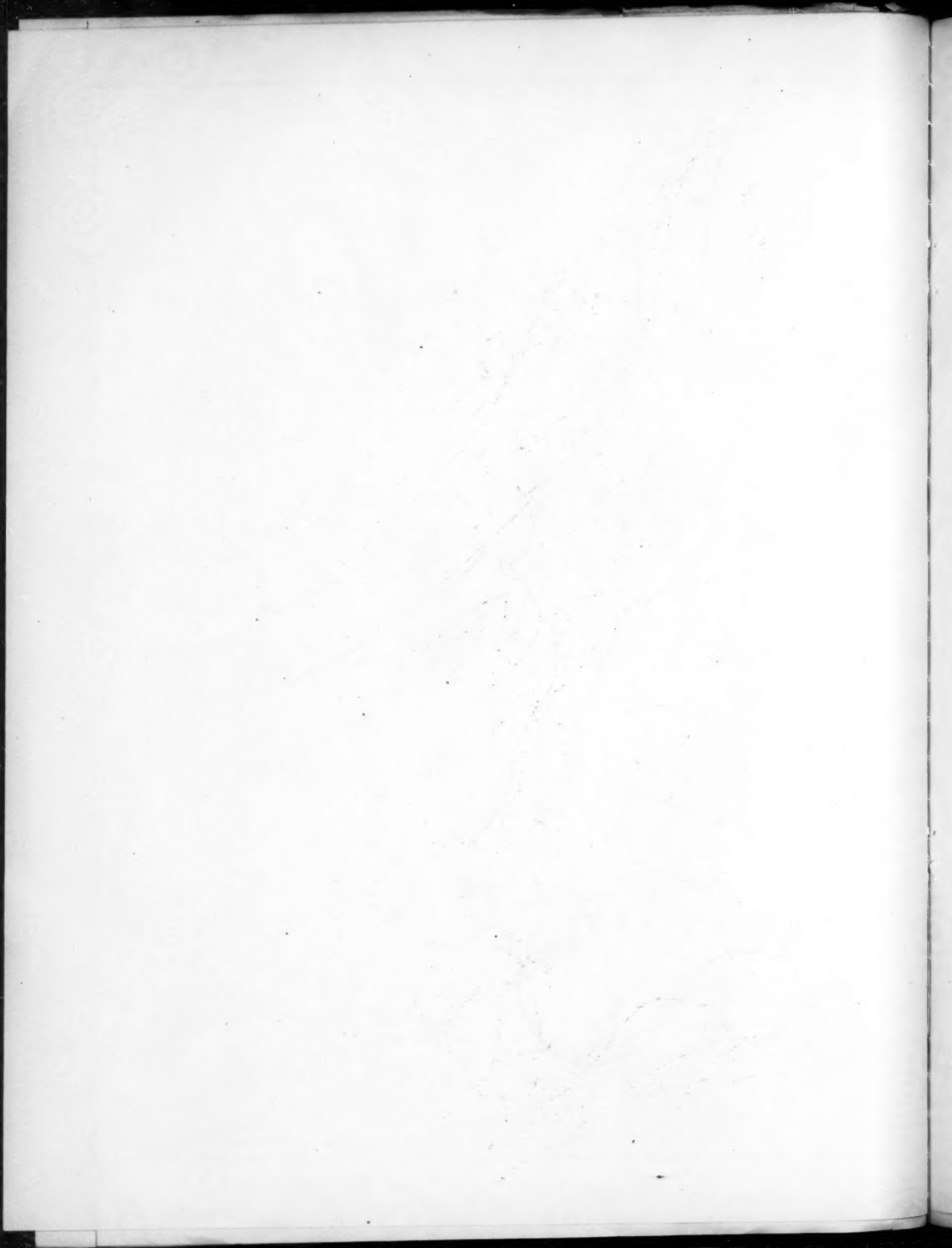
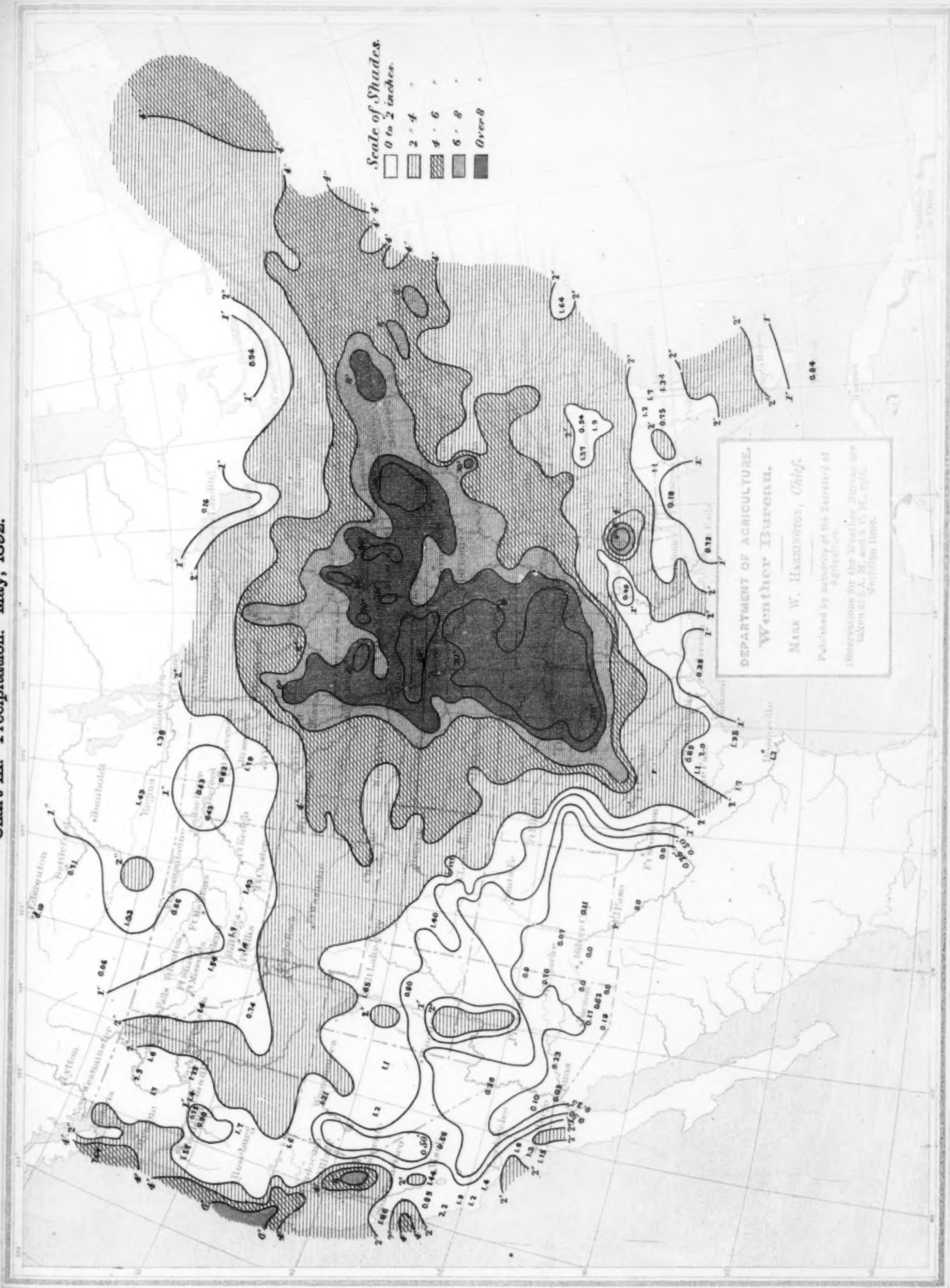


Chart III. Precipitation. May, 1892.



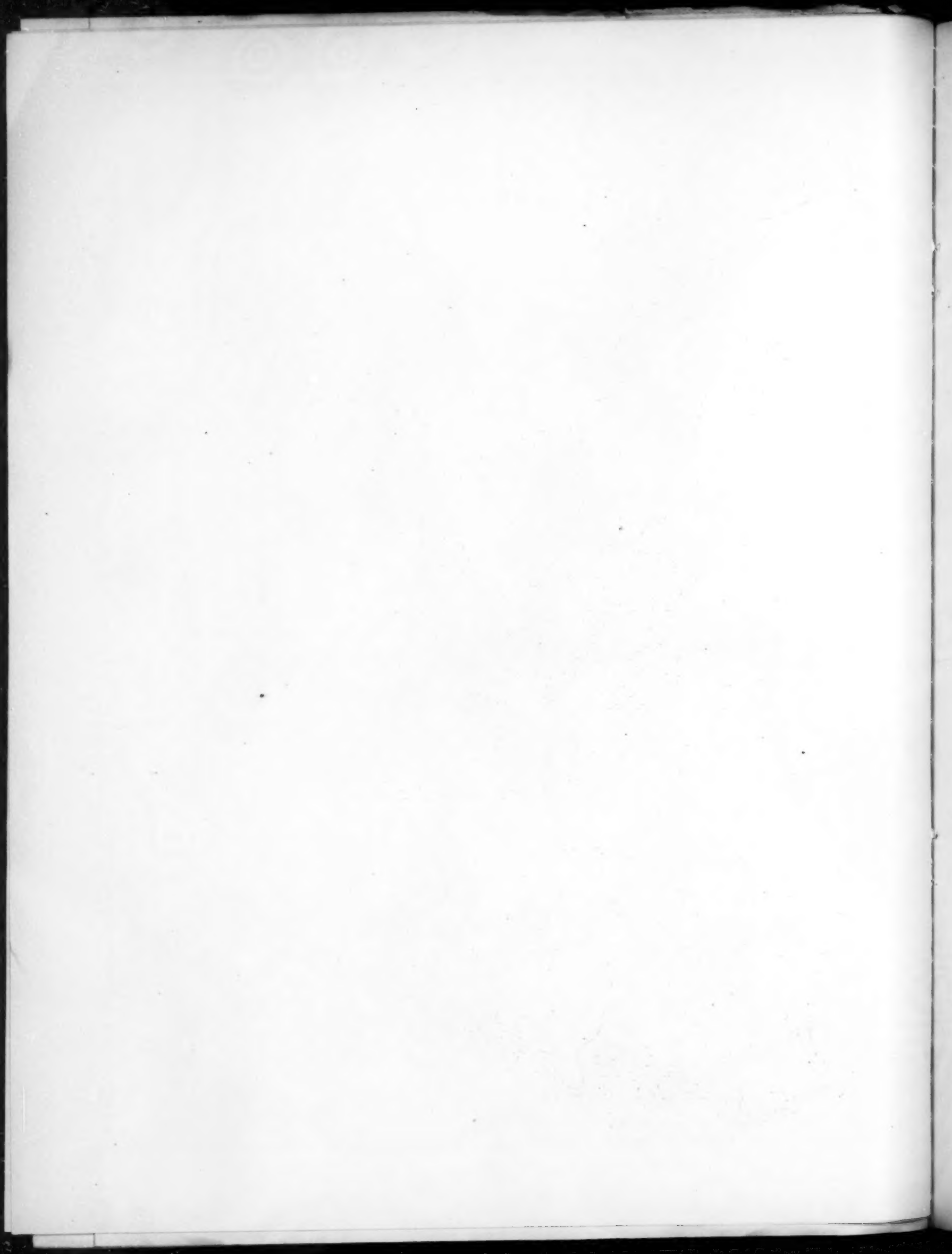
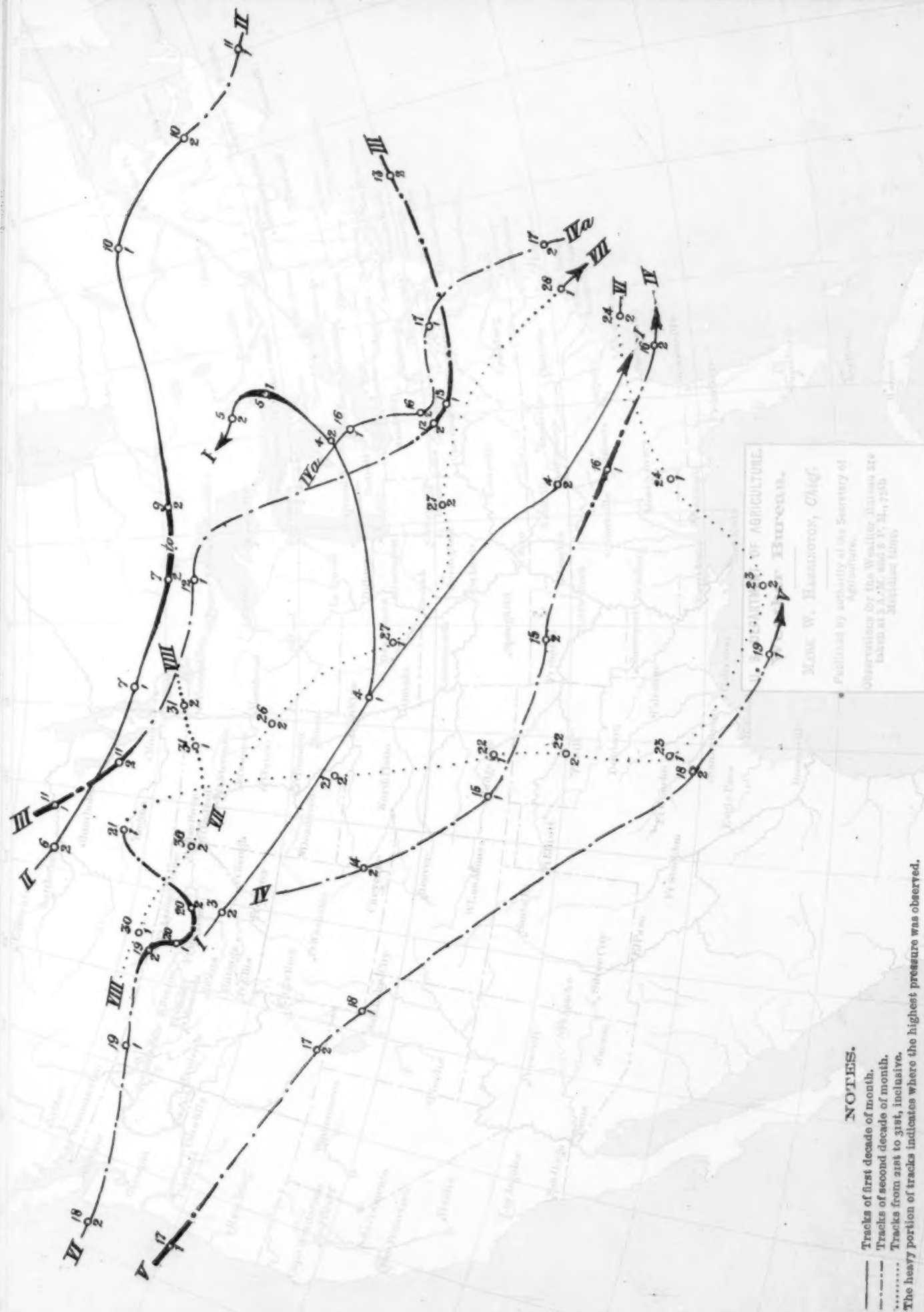


Chart IV. Tracks of areas of High Pressure. May, 1892.



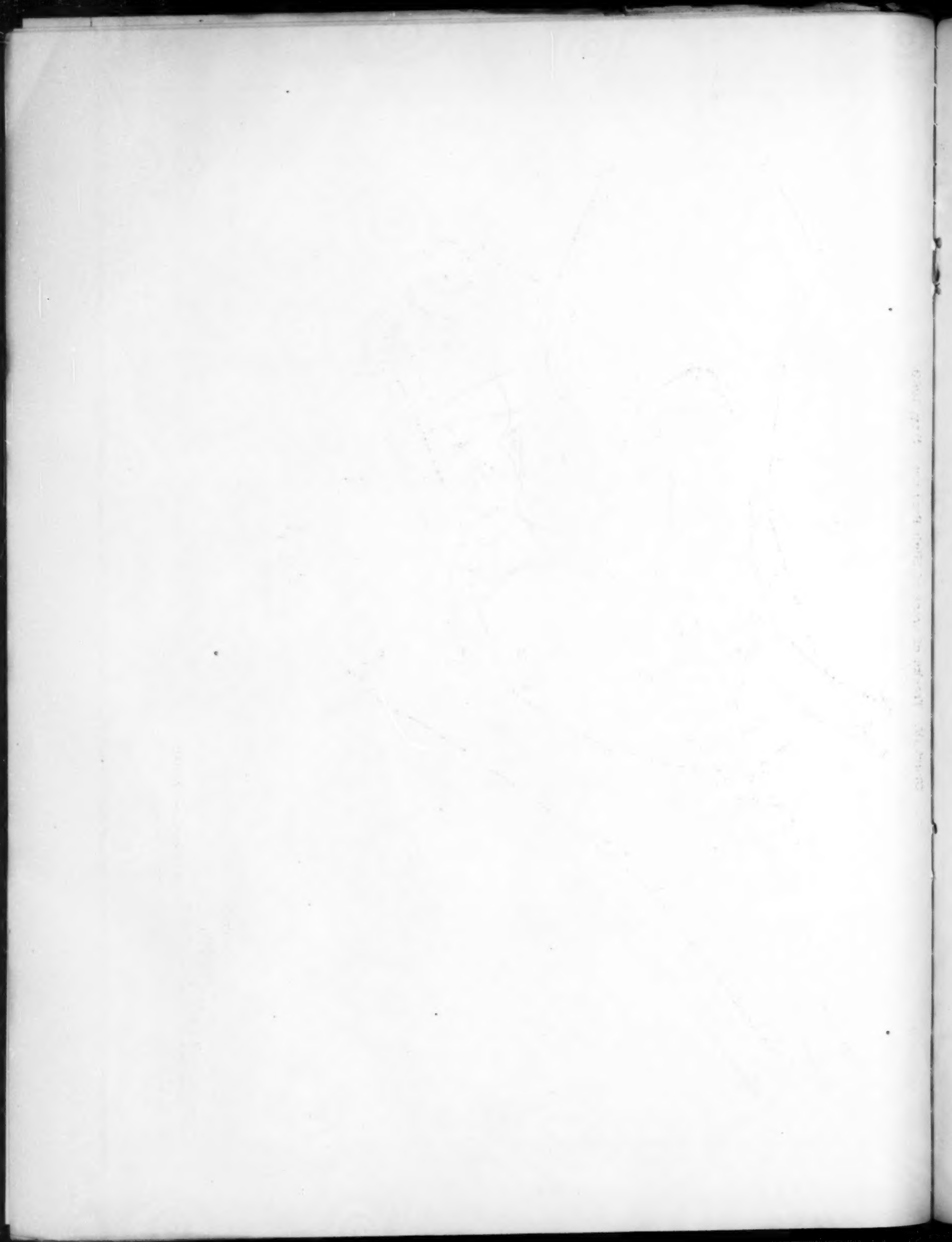


Chart V. Line of Advance of Thunderstorms in New York. May 3, 1892.

